



1/46

SEQUENCE LISTING

<110> Abbott Laboratories  
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Devare, Sushil G.

<120> NOVEL ANTIGEN CONSTRUCTS USEFUL IN THE  
DETECTION AND DIFFERENTIATION OF ANTIBODIES TO HIV

<130> 6165.US.01

<140> US 08/911,824  
<141> 1997-08-15

<160> 121

<170> FastSEQ for Windows Version 3.0

<210> 1  
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<220>  
<223> Sequencing Primer 43285

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<220>  
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20

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60

114

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aaaggatatcg tacagcagca cgacaacctg ctgcgtgcaa tccaggcaca g 111

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<220>
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ctgatccaga accagcagct gctgaacctg tggggctgca aaggctgtct gatctgctac 60
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<212> DNA
<213> Human Immunodeficiency Virus

<220>
<223> Synthetic oligonucleotide (Osyn-F) for PCR

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gtccccatcc tgccaggtca gtttaccca gatctggttg atgttggtgg tgttacg 117

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<212> DNA
<213> Human Immunodeficiency Virus

<220>
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 gggcttctct gtggaaactgg ctggacatca ccaaattggct g 101

<210> 9  
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 <213> Human Immunodeficiency Virus

<220>  
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 accttcaccg gtacgaccgg gagtttcagc ttcaactgc tgacgggtcg ggtatctgcag 60  
 ggacacggc tgtagccct gacggatgtt acgcagccat ttggatgtt ccag 114

<210> 10  
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 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Synthetic oligonucleotide (Osyn-I) for PCR

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 cgggtcgtac cggtaaggt ggtggtgacg aaggccgtcc gcgtctgatc ccgtctccgc 60  
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<210> 11  
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<220>  
 <223> HIV-1 Group O PCR Primer Osyn-5' (outside)

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<210> 12  
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 <212> DNA  
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<220>  
 <223> Synthetic oligonucleotide (Osyn-K) for PCR

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<210> 13  
 <211> 114  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>

<223> Synthetic oligonucleotide (Osyn-L) for PCR  
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<210> 14  
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 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O PCR Primer Osyn-M (antisense)

<400> 14  
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<210> 15  
 <211> 43  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O PCR Primer Osyn-03' (antisense)

<400> 15  
 atagtaggat cctattattc accggtaacg cccggagttt cag 43

<210> 16  
 <211> 38  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O PCR Primer Osyn-P3' (antisense)

<400> 16  
 atagtaggat cctattacag ccatttggtg atgtccag 38

<210> 17  
 <211> 106  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Synthetic oligonucleotide (Osyn-B) for PCR

<400> 17  
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 gcacgtttt cacggtggtt gccagtaccg ataaccggac gagcga 106

<210> 18  
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<220>

<223> Synthetic oligonucleotide (Osyn-J) for PCR  
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 caggtagac agcaggtggc aggaccacag gatgatggta cgccggc 108

<210> 19  
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 <213> Human Immunodeficiency Virus

<220>  
 <223> Sequencing Primer CKS 176.1

<400> 19  
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<210> 20  
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<220>  
 <223> Sequencing Primer CKS3583

<400> 20  
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<210> 21  
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 <212> DNA  
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<220>  
 <223> PCR Primer IM-6F (Forward)

<400> 21  
 ccgctacctc cctgatcgac accttc 26

<210> 22  
 <211> 26  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> PCR Primer IM-6R (Reverse)

<400> 22  
 gaagggtgtcg atcaggagg tagcgg 26

<210> 23  
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 <212> DNA  
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<220>  
 <223> PCR Primer 41sy-4

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| gatgtccagc cagttccac  | 19 |
| <210> 24  |    |
| <211> 64  |    |
| <212> DNA   |    |
| <213> Human Immunodeficiency Virus                                |    |
| <220>   |    |
| <223> Synthetic oligonucleotide (Osyn-5' repair) for PCR          |    |
| <400> 24  |    |
| ctacaagaat tccatgatcg gtggtgacat gaaagacatc tggcgtaacg aactgttcaa | 60 |
| atac  | 64 |
| <210> 25  |    |
| <211> 34  |    |
| <212> DNA   |    |
| <213> Human Immunodeficiency Virus                                |    |
| <220>   |    |
| <223> PCR Primer Osyn-5'CKS                                       |    |
| <400> 25  |    |
| ctacaagaat tctatcggtg gtgacatgaa agac                             | 34 |
| <210> 26  |    |
| <211> 20  |    |
| <212> DNA   |    |
| <213> Human Immunodeficiency Virus                                |    |
| <220>   |    |
| <223> PCR Primer I-PCR  |    |
| <400> 26  |    |
| cgggtcgtac cggtgaaggt   | 20 |
| <210> 27  |    |
| <211> 23  |    |
| <212> DNA   |    |
| <213> Human Immunodeficiency Virus                                |    |
| <220>   |    |
| <223> PCR Primer M-PCR  |    |
| <400> 27  |    |
| atagtaggat cctattacag cag   | 23 |
| <210> 28  |    |
| <211> 19  |    |
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| <213> Human Immunodeficiency Virus                                |    |
| <220>   |    |
| <223> Sequencing Primer pTB-S8                                    |    |

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| <400> 28                           |    |
| gccggaagcg agaagaatc               | 19 |
| <210> 29                           |    |
| <211> 19                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing Primer 41sy-1B    |    |
| <400> 29                           |    |
| tatcgtacag cagcaggac               | 19 |
| <210> 30                           |    |
| <211> 21                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
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| <223> Sequencing Primer CKS-1      |    |
| <400> 30                           |    |
| cccattaatg tgagttagct c            | 21 |
| <210> 31                           |    |
| <211> 20                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing Primer CKS-2      |    |
| <400> 31                           |    |
| cctgacaaat gattgtcgca              | 20 |
| <210> 32                           |    |
| <211> 19                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing Primer CKS-3      |    |
| <400> 32                           |    |
| attcagcgac gacacgggtg              | 19 |
| <210> 33                           |    |
| <211> 18                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
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| <223> Sequencing Primer CKS-4      |    |
| <400> 33                           |    |
| gtatccacac ctgtgcca                | 18 |

|                                      |    |  |
|--------------------------------------|----|--|
| <210> 34                             |    |  |
| <211> 19                             |    |  |
| <212> DNA                            |    |  |
| <213> Human Immunodeficiency Virus   |    |  |
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| <400> 34                             |    |  |
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| <223> Sequencing Primer 41sy-3B      |    |  |
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| <400> 35                             |    |  |
| aatgggcttc tctgtggaac                | 20 |  |
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| <210> 36                             |    |  |
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| <212> DNA                            |    |  |
| <213> Human Immunodeficiency Virus   |    |  |
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| <220>                                |    |  |
| <223> Sequencing Primer 41sy-5C      |    |  |
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| <400> 36                             |    |  |
| ctgtctaacc tgatctctgg                | 20 |  |
| <br>                                 |    |  |
| <210> 37                             |    |  |
| <211> 20                             |    |  |
| <212> DNA                            |    |  |
| <213> Human Immunodeficiency Virus   |    |  |
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| <220>                                |    |  |
| <223> Sequencing Primer 41sy-6B      |    |  |
| <br>                                 |    |  |
| <400> 37                             |    |  |
| acgcaggtga gagataacag                | 20 |  |
| <br>                                 |    |  |
| <210> 38                             |    |  |
| <211> 22                             |    |  |
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| <213> Human Immunodeficiency Virus   |    |  |
| <br>                                 |    |  |
| <220>                                |    |  |
| <223> PCR Primer pKRREcoR1 (Forward) |    |  |
| <br>                                 |    |  |
| <400> 38                             |    |  |
| gtgataacgaa acgaaggcatt gg           | 22 |  |
| <br>                                 |    |  |
| <210> 39                             |    |  |

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<211> 21
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<220>
<223> PCR Primer pKRRBamHI (Reverse)

<400> 39
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<210> 40
<211> 21
<212> DNA
<213> Human Immunodeficiency Virus

<220>
<223> PCR Primer 41sy-1C

<400> 40
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<210> 41
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<220>
<223> PCR Primer 41sy-2

<400> 41
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<210> 42
<211> 18
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<213> Human Immunodeficiency Virus

<220>
<223> PCR Primer 41sy-3

<400> 42
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<210> 43
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<220>
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<210> 44
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<213> Human Immunodeficiency Virus  
 <220>  
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<210> 45  
 <211> 20  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Sequencing Primer 56759

<400> 45  
 acactataga atactcaagc 20

<210> 46  
 <211> 20  
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<220>  
 <223> Sequencing Primer 55848

<400> 46  
 taatacgact cactataggg 20

<210> 47  
 <211> 741  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-9PL

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 atgatcggtg gtgacatgaa agacatctgg cgtaacgaac tggtaaaata caaagttgtt 60  
 cgtgttaaac cgttctctgt tgctccgacc ccgatcgctc gtccgggtat cggtactggc 120  
 acccaccgtg aaaaacgtgc tggtaggtctg ggtatgctgt tcctggcggt tctgtctgca 180  
 gcaggttcca ctatgggtgc tgcagctacc gctctgaccg tacagaccca ctctgttatac 240  
 aaaggtatcg tacagcagca ggacaacctg ctgcgtgcaaa tccaggcaca gcagggactg 300  
 ctgcgtctgt ctgtatgggg tatccgtcag ctgcgtgctc gtctgctggc actggaaacc 360  
 ctgatccaga accagcagct gctgaacctg tggggctgca aaggtcgtct gatctgctac 420  
 acctccgtta aatggAACGA aacctggcggt aacaccacca acatcaacca gatctggggt 480  
 aacctgaccc ggcagggatg ggaccaggcag atcgacaacg tttttccac catctacgaa 540  
 gaaatccaga aagctcaggt tcagcagggaa cagaacgaaa aaaaactgct ggaactggac 600  
 gaatgggctt ctctgtggaa ctggctggac atcaccaaattt ggctgcgtaa catccgtcag 660  
 ggctaccaggc cgctgtccct gcagatcccg acccgtcagc agtctgaagc tgaaaactccg 720  
 ggtcgttaccg gtgaataata g 741

<210> 48  
 <211> 245  
 <212> PRT

&lt;213&gt; Human Immunodeficiency Virus

&lt;220&gt;

&lt;223&gt; Encodes recombinant protein pGO-9PL

&lt;400&gt; 48

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ile | Gly | Gly | Asp | Met | Lys | Asp | Ile | Trp | Arg | Asn | Glu | Leu | Phe | Lys |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |
| Tyr | Lys | Val | Val | Arg | Val | Lys | Pro | Phe | Ser | Val | Ala | Pro | Thr | Pro | Ile |
|     |     |     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |
| Ala | Arg | Pro | Val | Ile | Gly | Thr | Gly | Thr | His | Arg | Glu | Lys | Arg | Ala | Val |
|     |     |     |     |     | 35  |     |     | 40  |     |     |     |     |     |     | 45  |
| Gly | Leu | Gly | Met | Leu | Phe | Leu | Gly | Val | Leu | Ser | Ala | Ala | Gly | Ser | Thr |
|     |     |     |     |     | 50  |     |     | 55  |     |     |     |     |     |     | 60  |
| Met | Gly | Ala | Ala | Ala | Thr | Ala | Leu | Thr | Val | Gln | Thr | His | Ser | Val | Ile |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |
| Lys | Gly | Ile | Val | Gln | Gln | Gln | Asp | Asn | Leu | Leu | Arg | Ala | Ile | Gln | Ala |
|     |     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |
| Gln | Gln | Glu | Leu | Leu | Arg | Leu | Ser | Val | Trp | Gly | Ile | Arg | Gln | Leu | Arg |
|     |     |     |     |     | 100 |     |     | 105 |     |     |     |     |     |     | 110 |
| Ala | Arg | Leu | Leu | Ala | Leu | Glu | Thr | Leu | Ile | Gln | Asn | Gln | Gln | Leu | Leu |
|     |     |     |     |     | 115 |     |     | 120 |     |     |     |     |     |     | 125 |
| Asn | Leu | Trp | Gly | Cys | Lys | Gly | Arg | Leu | Ile | Cys | Tyr | Thr | Ser | Val | Lys |
|     |     |     |     |     | 130 |     |     | 135 |     |     |     |     |     |     | 140 |
| Trp | Asn | Glu | Thr | Trp | Arg | Asn | Thr | Thr | Asn | Ile | Asn | Gln | Ile | Trp | Gly |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |
| Asn | Leu | Thr | Trp | Gln | Glu | Trp | Asp | Gln | Gln | Ile | Asp | Asn | Val | Ser | Ser |
|     |     |     |     |     | 165 |     |     | 170 |     |     |     |     |     |     | 175 |
| Thr | Ile | Tyr | Glu | Glu | Ile | Gln | Lys | Ala | Gln | Val | Gln | Glu | Gln | Asn |     |
|     |     |     |     |     | 180 |     |     | 185 |     |     |     |     |     |     | 190 |
| Glu | Lys | Lys | Leu | Leu | Glu | Leu | Asp | Glu | Trp | Ala | Ser | Leu | Trp | Asn | Trp |
|     |     |     |     |     | 195 |     |     | 200 |     |     |     |     |     |     | 205 |
| Leu | Asp | Ile | Thr | Lys | Trp | Leu | Arg | Asn | Ile | Arg | Gln | Gly | Tyr | Gln | Pro |
| 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |     |     |     |     |
| Leu | Ser | Leu | Gln | Ile | Pro | Thr | Arg | Gln | Gln | Ser | Glu | Ala | Glu | Thr | Pro |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Gly | Arg | Thr | Gly | Glu |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     | 245 |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 49

&lt;211&gt; 1476

&lt;212&gt; DNA

&lt;213&gt; Human Immunodeficiency Virus

&lt;220&gt;

<223> Nucleotide sequence of the coding region of  
pGO-9CKS

&lt;400&gt; 49

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| atgagttttg  | tgtcattat   | tcccgcgcc   | tacgcgtcga  | cgcgtctgcc  | cggtaaacca | 60  |
| ttgggttata  | ttaacggcaa  | acccatgatt  | gttcatgttc  | ttgaacgcgc  | gcgtgaatca | 120 |
| ggtgccgagc  | gcatcatcggt | ggcaaccgat  | catgaggatg  | ttgcccgcgc  | cgttgaagcc | 180 |
| gctggccgtg  | aagtatgtat  | gacgcgcgcc  | gatcatcgat  | caggaacaga  | acgtctggcg | 240 |
| gaagttgtcg  | aaaaatgcgc  | attcagcgac  | gacacgggtga | tcgttaatgt  | gcagggtgat | 300 |
| gaaccgatga  | tccctgcgac  | aatcattcgt  | caggttgcgt  | ataaacctcgc | tcagcgtcag | 360 |
| gtgggtatga  | cgactctggc  | ggtgccaaatc | cacaatgcgg  | aagaagcggtt | taacccgaat | 420 |
| gcgggtaaaag | tggttctcga  | cgctgaaggg  | tatgcactgt  | acttctctcg  | cgccaccatt | 480 |

|             |             |             |             |            |             |      |
|-------------|-------------|-------------|-------------|------------|-------------|------|
| ccttgggatc  | gtgatcgaaa  | tgcagaaggc  | cttggaaaccg | ttggcgataa | cttcctgcgt  | 540  |
| catcttggta  | tttatggcta  | ccgtgcaggc  | tttatccgtc  | gttacgtcaa | ctggcagcca  | 600  |
| agtccgttag  | aacacatcgaa | aatgttagag  | cagttcgtg   | ttctgtggta | cggcgaaaaaa | 660  |
| atccatgttg  | ctgttgctca  | ggaagttcct  | ggcacaggtg  | tggatacccc | tgaagatctc  | 720  |
| gaccgcgtcga | cgaattctat  | cggtggtgac  | atgaaagaca  | tctggcgtaa | cgaactgttc  | 780  |
| aaatacacaag | ttgttcgtgt  | taaaccgttc  | tctgttgctc  | cgaccccgat | cgctcgcccg  | 840  |
| gttatcggtta | ctggcacccca | ccgtgaaaaaa | cgtgtctgtag | gtctgggtat | gctgttcctg  | 900  |
| ggcgttctgt  | ctgcagcagg  | ttccactatg  | ggtgtctgcag | ctaccgctct | gaccgtacag  | 960  |
| acccactctg  | ttatcaaagg  | tatcgtag    | cagcaggaca  | acctgtctcg | tgcaatccag  | 1020 |
| gcacagcagg  | aactgtcg    | tctgtctgt   | tggggtatcc  | gtcagctcg  | tgctcgctg   | 1080 |
| ctggcactgg  | aaaccctgtat | ccagaaccag  | cagctgtga   | acctgtgggg | ctgcaaaggt  | 1140 |
| cgtctgtatct | gttacacac   | cgtaaatgg   | aacgaaacct  | ggcgtaacac | caccaacatc  | 1200 |
| aaccagatct  | ggggtaacct  | gacctggcag  | gaatgggacc  | agcagatcg  | caacgtttct  | 1260 |
| tccaccatct  | acgaagaaat  | ccagaaaagct | caggttcagc  | aggaacagaa | cggaaaaaaa  | 1320 |
| ctgctggAAC  | tggacgaatg  | ggcttctctg  | tggaaactggc | tggacatcac | caaatggctg  | 1380 |
| cgttaacatcc | gtcagggtca  | ccagccgctg  | tccctgcaga  | tcccggaccg | tcagcagtct  | 1440 |
| gaagctgaaa  | ctccgggtcg  | taccgggtgaa | taatag      |            |             | 1476 |

<210> 50  
<211> 490  
<212> PRT  
<213> Human Immunodeficiency Virus

<220>  
<223> Encodes recombinant protein pGO-9CKS

<400> 50  
 Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu  
 1 5 10 15  
 Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His  
 20 25 30  
 Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala  
 35 40 45  
 Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu  
 50 55 60  
 Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala  
 65 70 75 80  
 Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn  
 85 90 95  
 Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val  
 100 105 110  
 Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Thr Thr Leu Ala Val  
 115 120 125  
 Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met  
 195 200 205  
 Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala  
 210 215 220  
 Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Leu  
 225 230 235 240

Asp Pro Ser Thr Asn Ser Ile Gly Gly Asp Met Lys Asp Ile Trp Arg  
 245 250 255  
 Asn Glu Leu Phe Lys Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val  
 260 265 270  
 Ala Pro Thr Pro Ile Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg  
 275 280 285  
 Glu Lys Arg Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser  
 290 295 300  
 Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln  
 305 310 315 320  
 Thr His Ser Val Ile Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu  
 325 330 335  
 Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly  
 340 345 350  
 Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln  
 355 360 365  
 Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys  
 370 375 380  
 Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile  
 385 390 395 400  
 Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile  
 405 410 415  
 Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val  
 420 425 430  
 Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala  
 435 440 445  
 Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys Trp Leu Arg Asn Ile Arg  
 450 455 460  
 Gln Gly Tyr Gln Pro Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser  
 465 470 475 480  
 Glu Ala Glu Thr Pro Gly Arg Thr Gly Glu  
 485 490

<210> 51  
 <211> 1125  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-11PL

<400> 51

atgatcggtg gtgacatgaa agacatctgg cgtaacgaac tggtaaaata caaaagtgtt 60  
 cgtgttaaac cgttctctgt tgctccgacc ccgatcgctc gtccgggtat cggtaactggc 120  
 acccaccgtg aaaaacgtgc tggtaggtctg ggtatgctgt tccctggcggt tctgtctgca 180  
 gcagggttcca ctatgggtgc tgcagctacc gctctgaccg tacagaccca ctctgttatac 240  
 aaaggatatcg tacagcagca ggacaacctg ctgcgtgcaaa tccaggcaca gcaggaaactg 300  
 ctgcgtctgt ctgtatgggg tatccgtcag ctgcgtgctc gtctgctggc actggaaacc 360  
 ctgatccaga accagcagct gctgaacctg tggggctgca aaggtcgtct gatctgctac 420  
 acctccgtta aatggAACGA aacctggcgta aacaccacca acatcaacca gatctgggg 480  
 aacctgaccc ggcaggaaatg ggaccaggcag atcgacaacg tttcttccac catctacgaa 540  
 gaaatccaga aagctcaggt tcagcaggaa cagaacgaaa aaaaactgct ggaactggac 600  
 gaatgggctt ctctgtggaa ctggctggac atcaccaa at ggctgcgtaa catccgtcag 660  
 ggctaccaggc cgctgtccct gcagatcccc acccggtcagc agtctgaagc tgaaactccg 720  
 ggtcgttaccg gtgaagggtgg tggtgacgaa ggccgtccgc gtctgatccc gtctccgcag 780  
 gtttccctgc cgctgtgtca caccgacactg cgtaccatca tccctgtggtc ctaccacactg 840

|             |            |              |            |            |            |      |
|-------------|------------|--------------|------------|------------|------------|------|
| ctgtcttaacc | tgatctctgg | tactcagact   | gttatctctc | acctgcgtct | gggtctgtgg | 900  |
| attctgggtc  | agaaaatcat | cgacgcttgc   | cgtatctgcg | ctgctgttat | ccactactgg | 960  |
| ctgcaggaac  | tgagaaaatc | cgctacccctcc | ctgatcgaca | ccttcgctgt | tgcagttgt  | 1020 |
| aactggactg  | acgacatcat | cctgggtatc   | cagcgtctgg | gtcgtggtat | cctgaacatc | 1080 |
| ccgcgtcgtg  | ttcgccaggg | tttcgaacgc   | tctctgtgt  | aataag     |            | 1125 |

<210> 52  
 <211> 373  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Encodes recombinant protein pGO-11PL

|   |     |     |     |  |  |  |
|---|-----|-----|-----|--|--|--|
| <400> 52  |     |     |     |  |  |  |
| Met Ile Gly Gly Asp Met Lys Asp Ile Trp Arg Asn Glu Leu Phe Lys |     |     |     |  |  |  |
| 1   | 5   | 10  | 15  |  |  |  |
| Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile |     |     |     |  |  |  |
| 20  | 25  | 30  |     |  |  |  |
| Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg Glu Lys Arg Ala Val |     |     |     |  |  |  |
| 35  | 40  | 45  |     |  |  |  |
| Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr |     |     |     |  |  |  |
| 50  | 55  | 60  |     |  |  |  |
| Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln Thr His Ser Val Ile |     |     |     |  |  |  |
| 65  | 70  | 75  | 80  |  |  |  |
| Lys Gly Ile Val Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala     |     |     |     |  |  |  |
| 85  | 90  | 95  |     |  |  |  |
| Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly Ile Arg Gln Leu Arg |     |     |     |  |  |  |
| 100   | 105 | 110 |     |  |  |  |
| Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu |     |     |     |  |  |  |
| 115   | 120 | 125 |     |  |  |  |
| Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys |     |     |     |  |  |  |
| 130   | 135 | 140 |     |  |  |  |
| Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly |     |     |     |  |  |  |
| 145   | 150 | 155 | 160 |  |  |  |
| Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile Asp Asn Val Ser Ser |     |     |     |  |  |  |
| 165   | 170 | 175 |     |  |  |  |
| Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val Gln Glu Gln Asn     |     |     |     |  |  |  |
| 180   | 185 | 190 |     |  |  |  |
| Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp |     |     |     |  |  |  |
| 195   | 200 | 205 |     |  |  |  |
| Leu Asp Ile Thr Lys Trp Leu Arg Asn Ile Arg Gln Gly Tyr Gln Pro |     |     |     |  |  |  |
| 210   | 215 | 220 |     |  |  |  |
| Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser Glu Ala Glu Thr Pro |     |     |     |  |  |  |
| 225   | 230 | 235 | 240 |  |  |  |
| Gly Arg Thr Gly Glu Gly Gly Asp Glu Gly Arg Pro Arg Leu Ile     |     |     |     |  |  |  |
| 245   | 250 | 255 |     |  |  |  |
| Pro Ser Pro Gln Gly Phe Leu Pro Leu Leu Tyr Thr Asp Leu Arg Thr |     |     |     |  |  |  |
| 260   | 265 | 270 |     |  |  |  |
| Ile Ile Leu Trp Ser Tyr His Leu Leu Ser Asn Leu Ile Ser Gly Thr |     |     |     |  |  |  |
| 275   | 280 | 285 |     |  |  |  |
| Gln Thr Val Ile Ser His Leu Arg Leu Gly Leu Trp Ile Leu Gly Gln |     |     |     |  |  |  |
| 290   | 295 | 300 |     |  |  |  |
| Lys Ile Ile Asp Ala Cys Arg Ile Cys Ala Ala Val Ile His Tyr Trp |     |     |     |  |  |  |
| 305   | 310 | 315 | 320 |  |  |  |
| Leu Gln Glu Leu Gln Lys Ser Ala Thr Ser Leu Ile Asp Thr Phe Ala |     |     |     |  |  |  |
| 325   | 330 | 335 |     |  |  |  |

<210> 53  
<211> 1860  
<212> DNA  
<213> Human Immunodeficiency Virus

<220>  
<223> Nucleotide sequence of the coding region of  
pGO-11CKS

<210> 54  
<211> 618  
<212> PRT  
<213> Human Immunodeficiency Virus

<220>  
<223> Encodes recombinant protein pGO-11CKS

<400> 54  
 Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu  
 1 5 10 15  
 Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His  
 20 25 30  
 Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala  
 35 40 45  
 Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu  
 50 55 60  
 Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala  
 65 70 75 80  
 Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn  
 85 90 95  
 Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val  
 100 105 110  
 Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Thr Thr Leu Ala Val  
 115 120 125  
 Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met  
 195 200 205  
 Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala  
 210 215 220  
 Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Leu  
 225 230 235 240  
 Asp Pro Ser Thr Asn Ser Ile Gly Gly Asp Met Lys Asp Ile Trp Arg  
 245 250 255  
 Asn Glu Leu Phe Lys Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val  
 260 265 270  
 Ala Pro Thr Pro Ile Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg  
 275 280 285  
 Glu Lys Arg Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser  
 290 295 300  
 Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln  
 305 310 315 320  
 Thr His Ser Val Ile Lys Gly Ile Val Gln Gln Asp Asn Leu Leu  
 325 330 335  
 Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly  
 340 345 350  
 Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln  
 355 360 365  
 Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys  
 370 375 380  
 Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile  
 385 390 395 400  
 Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile  
 405 410 415  
 Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val  
 420 425 430  
 Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala  
 435 440 445

Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys Trp Leu Arg Asn Ile Arg  
 450 455 460  
 Gln Gly Tyr Gln Pro Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser  
 465 470 475 480  
 Glu Ala Glu Thr Pro Gly Arg Thr Gly Glu Gly Gly Asp Glu Gly  
 485 490 495  
 Arg Pro Arg Leu Ile Pro Ser Pro Gln Gly Phe Leu Pro Leu Leu Tyr  
 500 505 510  
 Thr Asp Leu Arg Thr Ile Ile Leu Trp Ser Tyr His Leu Leu Ser Asn  
 515 520 525  
 Leu Ile Ser Gly Thr Gln Thr Val Ile Ser His Leu Arg Leu Gly Leu  
 530 535 540  
 Trp Ile Leu Gly Gln Lys Ile Ile Asp Ala Cys Arg Ile Cys Ala Ala  
 545 550 555 560  
 Val Ile His Tyr Trp Leu Gln Glu Leu Gln Lys Ser Ala Thr Ser Leu  
 565 570 575  
 Ile Asp Thr Phe Ala Val Ala Val Asn Trp Thr Asp Asp Ile Ile  
 580 585 590  
 Leu Gly Ile Gln Arg Leu Gly Arg Gly Ile Leu Asn Ile Pro Arg Arg  
 595 600 605  
 Val Arg Gln Gly Phe Glu Arg Ser Leu Leu  
 610 615

<210> 55  
 <211> 466  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-2 recombinant peptide (pHIV-210)

<400> 55  
 Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu  
 1 5 10 15  
 Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His  
 20 25 30  
 Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala  
 35 40 45  
 Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu  
 50 55 60  
 Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala  
 65 70 75 80  
 Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn  
 85 90 95  
 Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val  
 100 105 110  
 Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Thr Thr Leu Ala Val  
 115 120 125  
 Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met

| 195                             | 200                 | 205                     |     |
|---------------------------------|---------------------|-------------------------|-----|
| Leu Glu Gln Leu Arg Val         | Leu Trp Tyr Gly Glu | Lys Ile His Val Ala     |     |
| 210                             | 215                 | 220                     |     |
| Val Ala Gln Glu Val             | Pro Gly Thr Gly Val | Asp Thr Pro Glu Asp Leu |     |
| 225                             | 230                 | 235                     | 240 |
| Asp Pro Ser Thr Asn Ser         | Met Glu Gly Glu     | Leu Thr Cys Asn Ser Thr |     |
| 245                             | 250                 | 255                     |     |
| Val Thr Ser Ile Ile Ala Asn Ile | Asp Ser Asp Gly Asn | Gln Thr Asn             |     |
| 260                             | 265                 | 270                     |     |
| Ile Thr Phe Ser Ala Glu Val     | Ala Glu Leu Tyr Arg | Leu Glu Leu Gly         |     |
| 275                             | 280                 | 285                     |     |
| Asp Tyr Lys Leu Ile Glu Val     | Thr Pro Ile Gly Phe | Ala Pro Thr Lys         |     |
| 290                             | 295                 | 300                     |     |
| Glu Lys Arg Tyr Ser Ser Ala     | Pro Val Arg Asn Lys | Arg Gly Val Phe         |     |
| 305                             | 310                 | 315                     | 320 |
| Val Leu Gly Phe Leu Gly         | Phe Leu Ala Thr     | Ala Gly Ser Ala Met Gly |     |
| 325                             | 330                 | 335                     |     |
| Ala Ala Ser Leu Thr Leu Ser     | Ala Gln Ser Arg     | Thr Leu Leu Ala Gly     |     |
| 340                             | 345                 | 350                     |     |
| Ile Val Gln Gln Gln Gln         | Leu Leu Asp Val Val | Lys Arg Gln Gln         |     |
| 355                             | 360                 | 365                     |     |
| Glu Met Leu Arg Leu Thr Val     | Trp Gly Thr Lys Asn | Leu Gln Ala Arg         |     |
| 370                             | 375                 | 380                     |     |
| Val Thr Ala Ile Glu Lys Tyr     | Leu Lys Asp Gln Ala | Gln Leu Asn Ser         |     |
| 385                             | 390                 | 395                     | 400 |
| Trp Gly Cys Ala Phe Arg         | Gln Val Cys His Thr | Thr Val Pro Trp Val     |     |
| 405                             | 410                 | 415                     |     |
| Asn Asp Ser Leu Thr Pro Asp     | Trp Asn Asn Met Thr | Trp Gln Glu Trp         |     |
| 420                             | 425                 | 430                     |     |
| Glu Lys Arg Val His Tyr         | Leu Glu Ala Asn Ile | Ser Gln Ser Leu Glu     |     |
| 435                             | 440                 | 445                     |     |
| Gln Ala Gln Ile Gln Gln         | Glu Lys Asn Met Tyr | Glu Leu Gln Lys Leu     |     |
| 450                             | 455                 | 460                     |     |
| Asn Ser                         |                     |                         |     |
| 465                             |                     |                         |     |

<210> 56  
 <211> 491  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group M recombinant peptide (pTB319)

|   |                                 |    |    |
|---|---------------------------------|----|----|
| <400> 56                                    |                                 |    |    |
| Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr | Ala Ser Thr Arg Leu             |    |    |
| 1   | 5                               | 10 | 15 |
| Pro Gly Lys Pro Leu Val Asp Ile Asn         | Gly Lys Pro Met Ile Val His     |    |    |
| 20  | 25                              | 30 |    |
| Val Leu Glu Arg Ala Arg Glu Ser             | Gly Ala Glu Arg Ile Ile Val Ala |    |    |
| 35  | 40                              | 45 |    |
| Thr Asp His Glu Asp Val Ala Arg Ala Val     | Glu Ala Ala Gly Gly Glu         |    |    |
| 50  | 55                              | 60 |    |
| Val Cys Met Thr Arg Ala Asp His Gln Ser     | Gly Thr Glu Arg Leu Ala         |    |    |
| 65  | 70                              | 75 | 80 |
| Glu Val Val Glu Lys Cys Ala Phe Ser Asp     | Asp Asp Thr Val Ile Val Asn     |    |    |
| 85  | 90                              | 95 |    |

Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val  
 100 105 110  
 Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Ala Thr Leu Ala Val  
 115 120 125  
 Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met  
 195 200 205  
 Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala  
 210 215 220  
 Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Pro  
 225 230 235 240  
 Ser Thr Ala Leu Met Lys Ile Pro Gly Asp Pro Gly Gly Asp Met  
 245 250 255  
 Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile  
 260 265 270  
 Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln  
 275 280 285  
 Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu  
 290 295 300  
 Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val  
 305 310 315 320  
 Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu  
 325 330 335  
 Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp  
 340 345 350  
 Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu  
 355 360 365  
 Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile  
 370 375 380  
 Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu  
 385 390 395 400  
 Glu Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile  
 405 410 415  
 Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn  
 420 425 430  
 Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Val  
 435 440 445  
 Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu  
 450 455 460  
 Pro Ile Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Lys Lys Ala  
 465 470 475 480  
 Ala Asn Val Thr Val Thr Val Pro Phe Val Trp  
 485 490

<210> 57  
 <211> 651  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>

<223> Nucleotide sequence of the coding region of  
pGO-8PL

<400> 57

|            |            |             |             |            |             |     |
|------------|------------|-------------|-------------|------------|-------------|-----|
| atgatccgtg | gtgacatgaa | agacatctgg  | cgtaacgaac  | tgttcaaata | caaagttgtt  | 60  |
| cgtgttaaac | cgttctctgt | tgctccgacc  | ccgatcgctc  | gtccggttat | cggtaactggc | 120 |
| acccaccgtg | aaaaacgtgc | tgtaggtctg  | ggtatgtgt   | tcctgggcgt | tctgtctgca  | 180 |
| gcaggttcca | ctatgggtgc | tgcagctacc  | gctctgaccg  | tacagaccca | ctctgttata  | 240 |
| aaaggtatcg | tacagcagca | ggacaacctg  | ctgcgtgcaa  | tccaggcaca | gcaggaactg  | 300 |
| ctgcgtctgt | ctgtatgggg | tatccgtcag  | ctgcgtgctc  | gtctgctggc | actggaaacc  | 360 |
| ctgatccaga | accagcagct | gctgaacctg  | tggggctgca  | aaggtcgtct | gatctgtac   | 420 |
| acctccgtta | aatggAACGA | aacctggcgt  | aacaccacca  | acatcaacca | gatctggggt  | 480 |
| aacctgacct | ggcaggaatg | ggaccagcag  | atcgacaacg  | tttcttccac | catctacgaa  | 540 |
| gaaatccaga | aagctcaggt | tcagcagggaa | cagaacgaaa  | aaaaactgct | ggaactggac  | 600 |
| gaatggcctt | ctctgtggaa | ctggctggac  | atcaccaaata | ggctgtataa | g           | 651 |

<210> 58

<211> 215

<212> PRT

<213> Human Immunodeficiency Virus

<220>

<223> Encodes recombinant protein pGO-8PL

<400> 58

|   |     |     |     |  |  |  |
|---|-----|-----|-----|--|--|--|
| Met Ile Gly Gly Asp Met Lys Asp Ile Trp Arg Asn Glu Leu Phe Lys |     |     |     |  |  |  |
| 1   | 5   | 10  | 15  |  |  |  |
| Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile |     |     |     |  |  |  |
| 20  | 25  | 30  |     |  |  |  |
| Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg Glu Lys Arg Ala Val |     |     |     |  |  |  |
| 35  | 40  | 45  |     |  |  |  |
| Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr |     |     |     |  |  |  |
| 50  | 55  | 60  |     |  |  |  |
| Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln Thr His Ser Val Ile |     |     |     |  |  |  |
| 65  | 70  | 75  | 80  |  |  |  |
| Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala |     |     |     |  |  |  |
| 85  | 90  | 95  |     |  |  |  |
| Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly Ile Arg Gln Leu Arg |     |     |     |  |  |  |
| 100   | 105 | 110 |     |  |  |  |
| Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu |     |     |     |  |  |  |
| 115   | 120 | 125 |     |  |  |  |
| Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys |     |     |     |  |  |  |
| 130   | 135 | 140 |     |  |  |  |
| Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly |     |     |     |  |  |  |
| 145   | 150 | 155 | 160 |  |  |  |
| Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile Asp Asn Val Ser Ser |     |     |     |  |  |  |
| 165   | 170 | 175 |     |  |  |  |
| Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn |     |     |     |  |  |  |
| 180   | 185 | 190 |     |  |  |  |
| Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp |     |     |     |  |  |  |
| 195   | 200 | 205 |     |  |  |  |
| Leu Asp Ile Thr Lys Trp Leu                                     |     |     |     |  |  |  |
| 210   | 215 |     |     |  |  |  |

<210> 59

<211> 1386

<212> DNA

<213> Human Immunodeficiency Virus

<220>

<223> Nucleotide sequence of the coding region of pGO-8CKS

<400> 59

|   |             |             |      |
|---|-------------|-------------|------|
| atgagtttg tggcattat tccgcgcgc tacgcgtcga    | cgcgctgcgc  | cggtaaacca  | 60   |
| ttggttgata ttaacggcaa acccatgatt gttcatgttc | ttgaacgcgc  | gcgtgaatca  | 120  |
| ggtgcgcgac gcatcatcgat ggcaaccgat           | catgaggatg  | ttggccgcgc  | 180  |
| gctggcggtg aagtatgtat gacgcgcgc             | gatcatcagt  | caggaacaga  | 240  |
| gaagttgtcg aaaaatgcgc                       | attcagcgac  | acgtctggcg  | 300  |
| gaaccgatga tccctgcgac aatcattcgat           | caggttgcgt  | tcgtaatgt   | 360  |
| gtgggtatga cgactctggc                       | ggtgcgaatc  | ataaacctcg  | 420  |
| gcggtaaaag tggttctcgat                      | cacaatgcgg  | tcagcgtcag  | 480  |
| cgctgaaggg tatgcactgt                       | aaaaatgcgc  | gtgggtatgt  | 540  |
| ccttggatc gtgatcgat                         | attcagcgac  | ttggcataa   | 600  |
| catcttgta ttatggcta ccgtgcaggc              | tttacgtcgt  | cttcctgcgt  | 660  |
| agtccgttag aacacatcgat                      | tttacgtcgt  | ctggcagcca  | 720  |
| aatgttagag cagttcgt                         | ttctgtggta  | cggcgaaaaaa | 780  |
| atccatgttgcgtat                             | cgctgaagggt | cgccaccatt  | 840  |
| gaccgcgtcgat                                | tttacgtcgt  | ttggcataa   | 900  |
| aaatacaaaag ttatggatc                       | tttacgtcgt  | cttcctgcgt  | 960  |
| gttacgtcgtat                                | tttacgtcgt  | ctggcagcca  | 1020 |
| ggcgttctgt ctgcagcagg                       | tttacgtcgt  | cgacactgttc | 1080 |
| acccactctg ttatcaaaagg                      | tttacgtcgt  | aaatacaaaag | 1140 |
| gcacagcagg aactctgcgt                       | tttacgtcgt  | tttacgtcgt  | 1200 |
| ctggcactgg aaaccctgtat                      | tttacgtcgt  | tttacgtcgt  | 1260 |
| ccagaaccag cagctgcgt                        | tttacgtcgt  | tttacgtcgt  | 1320 |
| cgtctgtatct gctacacac                       | tttacgtcgt  | tttacgtcgt  | 1380 |
| aaccagatct gggtaacac                        | tttacgtcgt  | tttacgtcgt  | 1386 |
| tccaccatct acgaagaaat                       | tttacgtcgt  | tttacgtcgt  |      |
| ctgctgaaac                                  | tttacgtcgt  | tttacgtcgt  |      |
| taatag                                      |             |             |      |

<210> 60

<211> 460

<212> PRT

<213> Human Immunodeficiency Virus

<220>

<223> Encodes recombinant protein pGO-8CKS

<400> 60

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|---|-----|-----|----|
| Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu |     |     |    |
| 1   | 5   | 10  | 15 |
| Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His |     |     |    |
| 20  | 25  | 30  |    |
| Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala |     |     |    |
| 35  | 40  | 45  |    |
| Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu |     |     |    |
| 50  | 55  | 60  |    |
| Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala |     |     |    |
| 65  | 70  | 75  | 80 |
| Glu Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn Val |     |     |    |
| 85  | 90  | 95  |    |
| Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val |     |     |    |
| 100   | 105 | 110 |    |
| Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Thr Thr Leu Ala Val |     |     |    |
| 115   | 120 | 125 |    |

Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met  
 195 200 205  
 Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala  
 210 215 220  
 Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Leu  
 225 230 235 240  
 Asp Pro Ser Thr Asn Ser Ile Gly Gly Asp Met Lys Asp Ile Trp Arg  
 245 250 255  
 Asn Glu Leu Phe Lys Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val  
 260 265 270  
 Ala Pro Thr Pro Ile Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg  
 275 280 285  
 Glu Lys Arg Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser  
 290 295 300  
 Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln  
 305 310 315 320  
 Thr His Ser Val Ile Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu  
 325 330 335  
 Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly  
 340 345 350  
 Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln  
 355 360 365  
 Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys  
 370 375 380  
 Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile  
 385 390 395 400  
 Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile  
 405 410 415  
 Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val  
 420 425 430  
 Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala  
 435 440 445  
 Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys Trp Leu  
 450 455 460

<210> 61  
 <211> 873  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O isolate HAM112

<400> 61  
 Met Ile Val Thr Met Arg Ala Met Gly Lys Arg Asn Arg Lys Leu Gly  
 1 5 10 15  
 Ile Leu Tyr Ile Val Met Ala Leu Ile Ile Pro Cys Leu Ser Ser Ser  
 20 25 30  
 Gln Leu Tyr Ala Thr Val Tyr Ala Gly Val Pro Val Trp Glu Asp Ala

| 35                                  | 40                          | 45                  |
|-------------------------------------|-----------------------------|---------------------|
| Ala Pro Val Leu Phe Cys             | Ala Ser Asp Ala Asn         | Leu Thr Ser Thr Glu |
| 50                                  | 55                          | 60                  |
| Lys His Asn Val Trp Ala Ser Gln     | Ala Cys Val Pro Thr Asp     | Pro Thr             |
| 65                                  | 70                          | 75                  |
| 80                                  |                             |                     |
| Pro His Glu Tyr Leu Leu Thr Asn Val | Thr Asp Asn Phe Asn         | Ile Trp             |
| 85                                  | 90                          | 95                  |
| Glu Asn Tyr Met Val Glu Gln Met     | Gln Glu Asp Ile Ile Ser     | Leu Trp             |
| 100                                 | 105                         | 110                 |
| 115                                 | 120                         | 125                 |
| Asp Gln Ser Leu Lys Pro Cys Ile Gln | Met Thr Phe Met Cys         | Ile Gln             |
| 130                                 | 135                         | 140                 |
| Met Asn Cys Thr Asp Ile Lys Asn Asn | Asn Thr Ser Gly             | Thr Glu Asn         |
| 145                                 | 150                         | 155                 |
| 160                                 |                             |                     |
| Arg Thr Ser Ser Ser Glu Asn Pro Met | Lys Thr Cys Glu Phe Asn     | Ile                 |
| 165                                 | 170                         | 175                 |
| Thr Thr Val Leu Lys Asp Lys Lys     | Glu Lys Gln Ala Leu Phe     | Tyr                 |
| 180                                 | 185                         | 190                 |
| Tyr Thr Leu Ile Asn Cys Asn Ser     | Thr Thr Ile Lys Gln Ala Cys | Pro                 |
| 195                                 | 200                         | 205                 |
| Lys Val Ser Phe Glu Pro Ile Pro     | Ile Tyr Tyr Cys Ala Pro     | Ala Gly             |
| 210                                 | 215                         | 220                 |
| Tyr Ala Ile Phe Lys Cys Asn Ser     | Ala Glu Phe Asn Gly         | Thr Gly Lys         |
| 225                                 | 230                         | 235                 |
| 240                                 |                             |                     |
| Cys Ser Asn Ile Ser Val Val         | Thr Cys Thr His Gly         | Ile Lys Pro Thr     |
| 245                                 | 250                         | 255                 |
| Val Ser Thr Gln Leu Ile Leu Asn     | Gly Thr Leu Ser Lys Glu     | Lys Ile             |
| 260                                 | 265                         | 270                 |
| Arg Ile Met Gly Lys Asn Ile Ser     | Asp Ser Gly Lys Asn Ile     | Ile Val             |
| 275                                 | 280                         | 285                 |
| Thr Leu Ser Ser Asp Ile Glu Ile     | Thr Cys Val Arg Pro         | Gly Asn Asn         |
| 290                                 | 295                         | 300                 |
| Gln Thr Val Gln Glu Met Lys         | Ile Gly Pro Met Ala         | Trp Tyr Ser Met     |
| 305                                 | 310                         | 315                 |
| 320                                 |                             |                     |
| Ala Leu Gly Thr Gly Ser Asn Arg     | Ser Arg Val Ala             | Tyr Cys Gln Tyr     |
| 325                                 | 330                         | 335                 |
| Asn Thr Thr Glu Trp Glu Lys         | Ala Leu Lys Asn Thr Ala     | Glu Arg Tyr         |
| 340                                 | 345                         | 350                 |
| Leu Glu Leu Ile Asn Asn Thr         | Glu Gly Asn Thr Thr         | Met Ile Phe Asn     |
| 355                                 | 360                         | 365                 |
| Arg Ser Gln Asp Gly Ser Asp Val     | Glu Val Thr His             | Leu His Phe Asn     |
| 370                                 | 375                         | 380                 |
| Cys His Gly Glu Phe Phe             | Tyr Cys Asn Thr Ser         | Glu Met Phe Asn Tyr |
| 385                                 | 390                         | 395                 |
| 400                                 |                             |                     |
| Thr Phe Leu Cys Asn Gly             | Thr Asn Cys Asn Asn         | Thr Gln Ser Ile Asn |
| 405                                 | 410                         | 415                 |
| Ser Ala Asn Gly Met Ile Pro Cys     | Lys Leu Lys Gln Val Val     | Arg Ser             |
| 420                                 | 425                         | 430                 |
| Trp Met Arg Gly Gly Ser Gly         | Leu Tyr Ala Pro Pro         | Ile Pro Gly Asn     |
| 435                                 | 440                         | 445                 |
| Leu Thr Cys Ile Ser His Ile         | Thr Gly Met Ile             | Leu Gln Met Asp Ala |
| 450                                 | 455                         | 460                 |
| Pro Trp Asn Lys Thr Glu Asn Thr     | Phe Arg Pro Ile             | Gly Gly Asp Met     |
| 465                                 | 470                         | 475                 |
| 480                                 |                             |                     |
| Lys Asp Ile Trp Arg Asn Glu Leu Phe | Lys Tyr Lys Val Val         | Arg Val             |
| 485                                 | 490                         | 495                 |

Lys Pro Phe Ser Val Ala Pro Thr Pro Ile Ala Arg Pro Val Ile Gly  
 500 505 510  
 Thr Gly Thr His Arg Glu Lys Arg Ala Val Gly Leu Gly Met Leu Phe  
 515 520 525  
 Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr  
 530 535 540  
 Ala Leu Thr Val Gln Thr His Ser Val Ile Lys Gly Ile Val Gln Gln  
 545 550 555 560  
 Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu Arg  
 565 570 575  
 Leu Ser Val Trp Gly Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu  
 580 585 590  
 Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Lys  
 595 600 605  
 Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp Arg  
 610 615 620  
 Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln Glu  
 625 630 635 640  
 Trp Asp Gln Gln Ile Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu Ile  
 645 650 655  
 Gln Lys Ala Gln Val Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu  
 660 665 670  
 Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys Trp  
 675 680 685  
 Leu Trp Tyr Ile Lys Ile Ala Ile Ile Val Gly Ala Leu Ile Gly  
 690 695 700  
 Val Arg Ile Val Met Ile Val Leu Asn Leu Val Arg Asn Ile Arg Gln  
 705 710 715 720  
 Gly Tyr Gln Pro Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser Glu  
 725 730 735  
 Ala Glu Thr Pro Gly Arg Thr Gly Glu Gly Gly Asp Glu Gly Arg  
 740 745 750  
 Pro Arg Leu Ile Pro Ser Pro Gln Gly Phe Leu Pro Leu Leu Tyr Thr  
 755 760 765  
 Asp Leu Arg Thr Ile Ile Leu Trp Ser Tyr His Leu Leu Ser Asn Leu  
 770 775 780  
 Ile Ser Gly Thr Gln Thr Val Ile Ser His Leu Arg Leu Gly Leu Trp  
 785 790 795 800  
 Ile Leu Gly Gln Lys Ile Ile Asp Ala Cys Arg Ile Cys Ala Ala Val  
 805 810 815  
 Ile His Tyr Trp Leu Gln Glu Leu Gln Lys Ser Ala Thr Ser Leu Ile  
 820 825 830  
 Asp Thr Phe Ala Val Ala Val Ala Asn Trp Thr Asp Asp Ile Ile Leu  
 835 840 845  
 Gly Ile Gln Arg Leu Gly Arg Gly Ile Leu Asn Ile Pro Arg Arg Val  
 850 855 860  
 Arg Gln Gly Phe Glu Arg Ser Leu Leu  
 865 870

&lt;210&gt; 62

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Human Immunodeficiency Virus

&lt;220&gt;

&lt;223&gt; HIV-1 Group O (env10R) PCR reverse primer

|   |    |
|---|----|
| <400> 62  |    |
| yctytagaga gtgtcccatt                           | 20 |
| <210> 63  |    |
| <211> 19  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env15R) PCR reverse primer |    |
| <400> 63  |    |
| gtgctwcctg ctgcactta                            | 19 |
| <210> 64  |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env22R) PCR reverse primer |    |
| <400> 64  |    |
| aagttgctca agaggtggta                           | 20 |
| <210> 65  |    |
| <211> 19  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env26R) PCR reverse primer |    |
| <400> 65  |    |
| ccttagaggc acttgaggt                            | 19 |
| <210> 66  |    |
| <211> 19  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env1F) PCR forward primer  |    |
| <400> 66  |    |
| ccaragcagt aagtaacgc                            | 19 |
| <210> 67  |    |
| <211> 23  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env7F) PCR forward primer  |    |
| <400> 67  |    |
| rttaaytaat tgtaactcca caa                       | 23 |

|   |    |
|---|----|
| <210> 68  |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <br><220>                                       |    |
| <223> HIV-1 Group O (env12F) PCR forward primer |    |
| <br><400> 68                                    |    |
| gamtytatgc acctcccatc                           | 20 |
| <br><210> 69                                    |    |
| <211> 21  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <br><220>                                       |    |
| <223> HIV-1 Group O (env19F) PCR forward primer |    |
| <br><400> 69                                    |    |
| gacataacta aatgggttg g                          | 21 |
| <br><210> 70                                    |    |
| <211> 23  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <br><220>                                       |    |
| <223> HIV-1 Group O (env2F) PCR forward primer  |    |
| <br><400> 70                                    |    |
| atacttgara grttaagrag aat                       | 23 |
| <br><210> 71                                    |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <br><220>                                       |    |
| <223> HIV-1 Group O (env9R) PCR reverse primer  |    |
| <br><400> 71                                    |    |
| atgccatgtg tacaagtaac                           | 20 |
| <br><210> 72                                    |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <br><220>                                       |    |
| <223> HIV-1 Group O (env8F) PCR forward primer  |    |
| <br><400> 72                                    |    |
| atacactatt gtgctccarc                           | 20 |
| <br><210> 73                                    |    |

|   |    |
|---|----|
| <211> 22  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env14R) PCR reverse primer |    |
| <400> 73  |    |
| agttctccat atatcttca tr                         | 22 |
| <210> 74  |    |
| <211> 22  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env13F) PCR forward primer |    |
| <400> 74  |    |
| aacataactg gaatgatyct ac                        | 22 |
| <210> 75  |    |
| <211> 18  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env21R) PCR reverse primer |    |
| <400> 75  |    |
| ctgagrtccg tgtacaac                             | 18 |
| <210> 76  |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env20F) PCR forward primer |    |
| <400> 76  |    |
| attaggcagg gatatcaacc                           | 20 |
| <210> 77  |    |
| <211> 18  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env25R) PCR reverse primer |    |
| <400> 77  |    |
| cctactccag gtgcrcat                             | 18 |
| <210> 78  |    |
| <211> 19  |    |
| <212> DNA                                       |    |

|   |    |
|---|----|
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env4F) PCR forward primer  |    |
| <400> 78  |    |
| cawcacaaggc ctgyggttcc                          | 19 |
| <210> 79  |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env5R) PCR reverse primer  |    |
| <400> 79  |    |
| atgtcttcvt gcatttgktc                           | 20 |
| <210> 80  |    |
| <211> 20  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env10F) PCR forward primer |    |
| <400> 80  |    |
| aatggggacac tctcttaragr                         | 20 |
| <210> 81  |    |
| <211> 22  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env11F) PCR forward primer |    |
| <400> 81  |    |
| ttaactgtca tggagaattc tt                        | 22 |
| <210> 82  |    |
| <211> 22  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |
| <220>   |    |
| <223> HIV-1 Group O (env11R) PCR reverse primer |    |
| <400> 82  |    |
| aagaattctc catgacagtt aa                        | 22 |
| <210> 83  |    |
| <211> 19  |    |
| <212> DNA                                       |    |
| <213> Human Immunodeficiency Virus              |    |

<220>  
 <223> HIV-1 Group O (env15F) PCR forward primer  
 <400> 83  
 taagtgcagc aggwagcac 19

<210> 84  
 <211> 21  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O (env19R) PCR reverse primer  
 <400> 84  
 ccacaaccat ttagttatgt c 21

<210> 85  
 <211> 20  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O (env22F) PCR forward primer  
 <400> 85  
 taccaccctct tgagcaactt 20

<210> 86  
 <211> 19  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O (env24R) PCR reverse primer  
 <400> 86  
 cytgtctaatt yctycttgg 19

<210> 87  
 <211> 19  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> HIV-1 Group O PCR primer AG1

<400> 87  
 tggcctggta cagcatggg 19

<210> 88  
 <211> 32  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> PCR Primer 3634

<400> 88  
 gtacgaattc catggaaggg gagttgaccc gc 32  
  
 <210> 89  
 <211> 34  
 <212> DNA  
 <213> Human Immunodeficiency Virus  
  
 <220>  
 <223> PCR Primer 3636  
  
 <400> 89  
 tattggatcc ttatcagcta tttagttttt gtag 34  
  
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 <211> 2214  
 <212> DNA  
 <213> Human Immunodeficiency Virus  
  
 <220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-12CKS  
  
 <400> 90  
 atgagtttg tggtcattat tcccgccgc tacgcgtcga cgctctgcc cggtaaacca 60  
 ttgggttata ttaacggcaa acccatgatt gttcatgttc ttgaacgcgc gcgtgaatca 120  
 ggtgccgagc gcatacatcgat ggcaaccgat catgaggatg ttgcccgcgc cggtgaagcc 180  
 gctggccgtg aagtatgtat gacgcgcgc gatcatcagt caggaacaga acgtctggcg 240  
 gaagtttgcg aaaaatgcgc attcagcgac gacacggta tcgttaatgt gcagggtgat 300  
 gaaccgatga tccctgcgac aatcattcgt caggttgcgt ataacctcgc tcagcgtcag 360  
 gtgggtatgg cgactctggc ggtgccaatc cacaatgcgg aagaagcggt taacccgaat 420  
 gccgtgaaag tggttctcgat cgctgaaggg tatgcactgt acttctctcg cgccaccatt 480  
 ccttggatc gtgatcgat tgcagaaggc cttgaaaccc ttggcgataa cttcctgcgt 540  
 catcttggta ttatggcta ccgtcgaggc ttatccgtc gttacgtcaa ctggcagcca 600  
 agtccgttag aacacatcgat aatgttagag cagcttcgtg ttctgtggta cggcgaaaaaa 660  
 atccatgttgc tggcgtctca ggaagttccct ggcacagggtg tggatacccc tgaagatccg 720  
 tcgacagccc ttatgaagat ccccgccgac ccgggtgggt gtgacatcg tgacaactgg 780  
 cgttctgaac tgtacaata caaagtgtt aaaatcgaac cgctgggtgt tgctccgact 840  
 aaagctaaac gtcgtgttgc tcagcgtgaa aaacgcgcgc ttggatcccg tgcactgttc 900  
 ctgggtttcc tgggtgctgc tggttctacc atgggtgcgt cttctatgac cctgactgtt 960  
 caggcccgatc agcttctgtc tggtatcgat cagcagcaga acaatctgt gcgtgcatac 1020  
 gaagctcagc agcatctgtc gcaactgacc gtttgggttca tcaaacagct tcaggcgtcgt 1080  
 atcctggctg ttgaacgtt cctgaaaagac cagcagctgc tgggtatctg ggggtgctct 1140  
 ggtaaactga tctgcactac tgctgttccg tggacgcgtt cttggatctaa caaatctctg 1200  
 gaacagatct ggaacaacat gacttggatg gaatgggacc gtggaaatcaa caactacaca 1260  
 agcttgcgttcc actctctgtat cgaagaaagc cagaaccagc agggaaaaaaa cgaacaggaa 1320  
 cttctagaac tggacaaaatg ggttaaccgt gttcgtcagg gttactctcc gctgtcttc 1380  
 cagaccatc tggcgatccc gcgtgtcccg gaccgtccgg aaggatcgaa agaagaaggc 1440  
 ggcgaacgtg accgtgaccg ttccattcgat ctggtaatcg gtgggtacat gaaagacatc 1500  
 tggcgtaacg aactgttcaa atacaaagtt gttcgtgtt aaccgttctc tggtgcgtcc 1560  
 accccgatcg ctcgtccgt tatcgtact ggcacccacc gtggaaaaacg tgctgttaggt 1620  
 ctgggtatgc tggcgtccgt cggttgcgtt gcagcagggtt ccactatggg tgctgcagct 1680  
 accgctctga ccgtacagac ccactctgtt atcaaaggta tcgtacagca gcaggacaac 1740  
 ctgctgcgtg caatccagggc acagcaggaa ctgctgcgtc tggatctgtat gggatccgt 1800  
 cagctgcgtg ctcgtctgtc ggcactggaa accctgatcc agaaccagca gctgctgaac 1860  
 ctgtgggct gcaaagggtcg tctgatctgc tacacctccg ttaaatggaa cgaaacactgg 1920

|   |      |
|---|------|
| cgtaacacca ccaacatcaa ccagatctgg ggtaacctga cctggcagga atgggaccag   | 1980 |
| cagatcgaca acgtttcttc caccatctac gaagaaatcc agaaagctca ggttcagcag   | 2040 |
| gaacagaacg aaaaaaaaaact gctggaactg gacgaatggg cttctctgtg gaactggctg | 2100 |
| gacatcacca aatggctgcg taacatccgt cagggctacc agccgctgtc cctgcagatc   | 2160 |
| ccgaccggcgtc agcagtctga agctgaaact ccgggtcgta ccggtaata atag        | 2214 |

<210> 91  
 <211> 736  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Encodes recombinant protein pGO-12CKS

|   |  |
|---|--|
| <400> 91  |  |
| Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu |  |
| 1 5 10 15   |  |
| Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His |  |
| 20 25 30  |  |
| Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala |  |
| 35 40 45  |  |
| Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu |  |
| 50 55 60  |  |
| Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala |  |
| 65 70 75 80   |  |
| Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn |  |
| 85 90 95  |  |
| Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val |  |
| 100 105 110   |  |
| Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Ala Thr Leu Ala Val |  |
| 115 120 125   |  |
| Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val |  |
| 130 135 140   |  |
| Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile |  |
| 145 150 155 160   |  |
| Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp |  |
| 165 170 175   |  |
| Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile |  |
| 180 185 190   |  |
| Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met |  |
| 195 200 205   |  |
| Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala |  |
| 210 215 220   |  |
| Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Pro |  |
| 225 230 235 240   |  |
| Ser Thr Ala Leu Met Lys Ile Pro Gly Asp Pro Gly Gly Asp Met     |  |
| 245 250 255   |  |
| Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile |  |
| 260 265 270   |  |
| Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln |  |
| 275 280 285   |  |
| Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu |  |
| 290 295 300   |  |
| Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val |  |
| 305 310 315 320   |  |
| Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu |  |
| 325 330 335   |  |

Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp  
                   340                  345                  350  
 Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu  
                   355                  360                  365  
 Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile  
                   370                  375                  380  
 Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu  
                   385                  390                  395                  400  
 Glu Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile  
                   405                  410                  415  
 Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn  
                   420                  425                  430  
 Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Val  
                   435                  440                  445  
 Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu  
                   450                  455                  460  
 Pro Ile Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly  
                   465                  470                  475                  480  
 Gly Glu Arg Asp Arg Asp Arg Ser Ile Arg Leu Val Ile Gly Gly Asp  
                   485                  490                  495  
 Met Lys Asp Ile Trp Arg Asn Glu Leu Phe Lys Tyr Lys Val Val Arg  
                   500                  505                  510  
 Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile Ala Arg Pro Val Ile  
                   515                  520                  525  
 Gly Thr Gly Thr His Arg Glu Lys Arg Ala Val Gly Leu Gly Met Leu  
                   530                  535                  540  
 Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala  
                   545                  550                  555                  560  
 Thr Ala Leu Thr Val Gln Thr His Ser Val Ile Lys Gly Ile Val Gln  
                   565                  570                  575  
 Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu  
                   580                  585                  590  
 Arg Leu Ser Val Trp Gly Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala  
                   595                  600                  605  
 Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys  
                   610                  615                  620  
 Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp  
                   625                  630                  635                  640  
 Arg Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln  
                   645                  650                  655  
 Glu Trp Asp Gln Gln Ile Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu  
                   660                  665                  670  
 Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu  
                   675                  680                  685  
 Glu Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys  
                   690                  695                  700  
 Trp Leu Arg Asn Ile Arg Gln Gly Tyr Gln Pro Leu Ser Leu Gln Ile  
                   705                  710                  715                  720  
 Pro Thr Arg Gln Gln Ser Glu Ala Glu Thr Pro Gly Arg Thr Gly Glu  
                   725                  730                  735

<210> 92  
 <211> 2124  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>

<223> Nucleotide sequence of the coding region of  
pGO-13CKS

<400> 92

<210> 93

<211> 706

<212> PRT

<213> Human Immunodeficiency Virus

<220>

<223> Encodes recombinant protein pGO-13CKS

<400> 93

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Phe | Val | Val | Ile | Ile | Pro | Ala | Arg | Tyr | Ala | Ser | Thr | Arg | Leu |
| 1   |     |     |     |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Gly | Lys | Pro | Leu | Val | Asp | Ile | Asn | Gly | Lys | Pro | Met | Ile | Val | His |
|     |     |     |     |     |     |     | 20  |     |     |     |     |     | 25  |     | 30  |
| Val | Leu | Glu | Arg | Ala | Arg | Glu | Ser | Gly | Ala | Glu | Arg | Ile | Ile | Val | Ala |
|     |     |     |     |     |     |     |     |     |     |     |     | 35  |     | 40  | 45  |
| Thr | Asp | His | Glu | Asp | Val | Ala | Arg | Ala | Val | Glu | Ala | Ala | Gly | Gly | Glu |

| 50  | 55                              | 60  |     |
|---|---------------------------------|-----|-----|
| Val Cys Met Thr Arg Ala Asp His Gln Ser Gly | Thr Glu Arg Leu Ala             |     |     |
| 65 65 70                                    | 75                              | 80  |     |
| Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp | Thr Val Ile Val Asn             |     |     |
| 85  | 90                              | 95  |     |
| Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr | Ile Arg Gln Val                 |     |     |
| 100   | 105                             | 110 |     |
| Ala Asp Asn Leu Ala Gln Arg Gln Val Gly     | Met Ala Thr Leu Ala Val         |     |     |
| 115   | 120                             | 125 |     |
| Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro | Asn Ala Val Lys Val             |     |     |
| 130   | 135                             | 140 |     |
| Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr     | Phe Ser Arg Ala Thr             | Ile |     |
| 145   | 150                             | 155 | 160 |
| Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly     | Leu Glu Thr Val Gly Asp         |     |     |
| 165   | 170                             | 175 |     |
| Asn Phe Leu Arg His Leu Gly Ile Tyr Gly     | Tyr Arg Ala Gly Phe             | Ile |     |
| 180   | 185                             | 190 |     |
| Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro     | Leu Glu His Ile Glu Met         |     |     |
| 195   | 200                             | 205 |     |
| Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly     | Glu Lys Ile His Val Ala         |     |     |
| 210   | 215                             | 220 |     |
| Val Ala Gln Glu Val Pro Gly Thr Gly Val     | Asp Thr Pro Glu Asp Pro         |     |     |
| 225   | 230                             | 235 | 240 |
| Ser Thr Ala Leu Met Lys Ile Pro Gly Asp     | Pro Gly Gly Asp Met             |     |     |
| 245   | 250                             | 255 |     |
| Arg Asp Asn Trp Arg Ser Glu Leu Tyr         | Lys Val Val Lys Ile             |     |     |
| 260   | 265                             | 270 |     |
| Glu Pro Leu Gly Val Ala Pro Thr Lys Ala     | Lys Arg Arg Val Val Gln         |     |     |
| 275   | 280                             | 285 |     |
| Arg Glu Lys Arg Ala Val Gly Ile Gly         | Ala Leu Phe Leu Gly Phe Leu     |     |     |
| 290   | 295                             | 300 |     |
| Gly Ala Ala Gly Ser Thr Met Gly Ala Ala     | Ser Met Thr Leu Thr Val         |     |     |
| 305   | 310                             | 315 | 320 |
| Gln Ala Arg Gln Leu Leu Ser Gly Ile Val     | Gln Gln Gln Asn Asn Leu         |     |     |
| 325   | 330                             | 335 |     |
| Leu Arg Ala Ile Glu Ala Gln Gln His         | Leu Leu Gln Leu Thr Val Trp     |     |     |
| 340   | 345                             | 350 |     |
| Gly Ile Lys Gln Leu Gln Ala Arg Ile         | Leu Ala Val Glu Arg Tyr Leu     |     |     |
| 355   | 360                             | 365 |     |
| Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly     | Cys Ser Gly Lys Leu Ile         |     |     |
| 370   | 375                             | 380 |     |
| Cys Thr Thr Ala Val Pro Trp Asn Ala Ser     | Trp Ser Asn Lys Ser Leu         |     |     |
| 385   | 390                             | 395 | 400 |
| Glu Gln Ile Trp Asn Asn Met Thr Trp         | Met Glu Trp Asp Arg Glu Ile     |     |     |
| 405   | 410                             | 415 |     |
| Asn Asn Tyr Thr Ser Leu Ile His Ser         | Leu Glu Ser Gln Asn             |     |     |
| 420   | 425                             | 430 |     |
| Gln Gln Glu Lys Asn Glu Gln Glu             | Leu Leu Glu Leu Asp Lys Trp Val |     |     |
| 435   | 440                             | 445 |     |
| Asn Arg Val Arg Gln Gly Tyr Ser Pro         | Leu Ser Phe Gln Thr His Leu     |     |     |
| 450   | 455                             | 460 |     |
| Pro Ile Pro Arg Gly Pro Asp Arg Pro         | Glu Gly Ile Glu Glu Gly         |     |     |
| 465   | 470                             | 475 | 480 |
| Gly Glu Arg Asp Arg Asp Arg Ser Ile Arg     | Leu Val Ile Gly Gly Asp         |     |     |
| 485   | 490                             | 495 |     |
| Met Lys Asp Ile Trp Arg Asn Glu Leu Phe     | Lys Tyr Lys Val Val Arg         |     |     |
| 500   | 505                             | 510 |     |

Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile Ala Arg Pro Val Ile  
 515 520 525  
 Gly Thr Gly Thr His Arg Glu Lys Arg Ala Val Gly Leu Gly Met Leu  
 530 535 540  
 Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala  
 545 550 555 560  
 Thr Ala Leu Thr Val Gln Thr His Ser Val Ile Lys Gly Ile Val Gln  
 565 570 575  
 Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu  
 580 585 590  
 Arg Leu Ser Val Trp Gly Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala  
 595 600 605  
 Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys  
 610 615 620  
 Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp  
 625 630 635 640  
 Arg Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln  
 645 650 655  
 Glu Trp Asp Gln Gln Ile Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu  
 660 665 670  
 Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu  
 675 680 685  
 Glu Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys  
 690 695 700  
 Trp Leu  
 705

<210> 94  
 <211> 1470  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-14pL

<400> 94

|             |             |             |            |            |             |      |
|-------------|-------------|-------------|------------|------------|-------------|------|
| atgatcggtg  | gtgacatgaa  | agacatctgg  | cgtaacgaac | tgttcaaata | caaagtgtt   | 60   |
| cgtgttaaac  | cgttctctgt  | tgctccgacc  | ccgatcgctc | gtccggttat | cggtaactggc | 120  |
| acccaccgtg  | aaaaacgtgc  | tgtaggtctg  | ggtatgtgt  | tcctgggcgt | tctgtctgca  | 180  |
| gcaggttcca  | ctatgggtgc  | tgcagctacc  | gctctgaccg | tacagaccca | ctctgttata  | 240  |
| aaaggatatcg | tacagcagca  | ggacaacctg  | ctgcgtgcaa | tccaggcaca | gcaggaactg  | 300  |
| ctgcgtctgt  | ctgtatgggg  | tatccgtcag  | ctgcgtgctc | gtctgtggc  | actggaaacc  | 360  |
| ctgatccaga  | accagcagct  | gctgaacctg  | tggggctgca | aagtcgtct  | gatctgctac  | 420  |
| acctccgtta  | aatggaacga  | aacctggcgt  | aacaccacca | acatcaacca | gatctggggt  | 480  |
| aacctgacct  | ggcaggaatg  | ggaccagcag  | atcgacaacg | tttcttccac | catctacgaa  | 540  |
| gaaatccaga  | aagctcaggt  | tcagcaggaa  | cagaacgaaa | aaaaactgct | ggaactggac  | 600  |
| gaatgggctt  | ctctgtggaa  | ctggctggac  | atcaccaat  | ggctgcgtaa | catccgtcag  | 660  |
| ggctaccagc  | cgtgtccct   | gcagatccc   | accggtcagc | agtctgaagc | tgaaactccg  | 720  |
| ggtcgtaccc  | gtgaagggtcc | gggtgggtgt  | gacatgcgtg | acaactggcg | ttctgaactg  | 780  |
| tacaaataca  | aagttgttaa  | aatcgaaccg  | ctgggtgtt  | ctccgactaa | agctaaacgt  | 840  |
| cgtgttgttc  | agcgtaaaaa  | acgcgccgtt  | ggtatcgctg | cactgttctt | gggtttctgt  | 900  |
| ggtgctctg   | gttctaccat  | gggtgctgct  | tctatgaccc | tgactgttca | ggcccgtcag  | 960  |
| cttctgtctg  | gtatcgttca  | gcagcagaac  | aatctgctgc | gtgctatcga | agctcagcag  | 1020 |
| catctgctgc  | aactgaccgt  | ttggggtatac | aaacagcttc | aggctcgat  | cctggctgtt  | 1080 |
| gaacgttacc  | tgaaagacca  | gcagctgctg  | ggtatctggg | ttgctctgg  | taaactgtac  | 1140 |
| tgcactactg  | ctgttccgtg  | gaacgcttct  | tggtctaaca | aatctctgga | acagatctgg  | 1200 |

|            |            |            |              |            |            |      |
|------------|------------|------------|--------------|------------|------------|------|
| aacaacatga | cttggatgg  | atgggaccgt | gaaatcaaca   | actacacaag | cttgatccac | 1260 |
| tctctgatcg | aagaaagcca | gaaccagcag | gaaaaaaaaacg | aacaggaact | tctagaactg | 1320 |
| gacaaatggg | ttaaccgtgt | tcgtcagggt | tactctccgc   | tgtctttcca | gaccatctg  | 1380 |
| ccgatcccgc | gtggtccgga | ccgtccggaa | ggtatcgaag   | aagaaggcgg | cgaacgtgac | 1440 |
| cgtgaccgtt | ccattcgtct | ggtataatag |              |            |            | 1470 |

<210> 95  
<211> 488  
<212> PRT  
<213> Human Immunodeficiency Virus

<220>  
<223> Encodes recombinant protein pGO-14PL

<400> 95  
 Met Ile Gly Gly Asp Met Lys Asp Ile Trp Arg Asn Glu Leu Phe Lys  
 1 5 10 15  
 Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile  
 20 25 30  
 Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg Glu Lys Arg Ala Val  
 35 40 45  
 Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr  
 50 55 60  
 Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln Thr His Ser Val Ile  
 65 70 75 80  
 Lys Gly Ile Val Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala  
 85 90 95  
 Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly Ile Arg Gln Leu Arg  
 100 105 110  
 Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu  
 115 120 125  
 Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys  
 130 135 140  
 Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile Asn Gln Ile Trp Gly  
 145 150 155 160  
 Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile Asp Asn Val Ser Ser  
 165 170 175  
 Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn  
 180 185. 190  
 Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala Ser Leu Trp Asn Trp  
 195 200 205  
 Leu Asp Ile Thr Lys Trp Leu Arg Asn Ile Arg Gln Gly Tyr Gln Pro  
 210 215 220  
 Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser Glu Ala Glu Thr Pro  
 225 230 235 240  
 Gly Arg Thr Gly Glu Gly Pro Gly Gly Asp Met Arg Asp Asn Trp  
 245 250 255  
 Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly  
 260 265 270  
 Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg  
 275 280 285  
 Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly  
 290 295 300  
 Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln  
 305 310 315 320  
 Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile  
 325 330 335

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln  
 340 345 350  
 Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln  
 355 360 365  
 Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala  
 370 375 380  
 Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp  
 385 390 395 400  
 Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr  
 405 410 415  
 Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys  
 420 425 430  
 Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Val Asn Arg Val Arg  
 435 440 445  
 Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ile Pro Arg  
 450 455 460  
 Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg Asp  
 465 470 475 480  
 Arg Asp Arg Ser Ile Arg Leu Val  
 485

<210> 96  
 <211> 1584  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-15CKS

<400> 96

|             |             |             |            |             |            |      |
|-------------|-------------|-------------|------------|-------------|------------|------|
| atgagttttg  | tgttcattat  | tcccgcgcc   | tacgcgtcga | cgcgtctgcc  | cggtaaacca | 60   |
| ttgggtgata  | ttaacggcaa  | acccatgatt  | gttcatgttc | ttgaacgcgc  | gcgtgaatca | 120  |
| ggtgcgcgac  | gcatcatcg   | ggcaaccgat  | catgaggatg | ttgcccgcgc  | cgttgaagcc | 180  |
| gctggcggtg  | aagtatgtat  | gacgcgcgcc  | gatcatcagt | cagaacaga   | acgtctggcg | 240  |
| gaagttgtcg  | aaaaatgcgc  | attcagcgac  | gacacgggta | tcgttaatgt  | gcagggtgat | 300  |
| gaaccgatga  | tcccctgcgac | aatcattcg   | caggttgcgt | ataacctcgc  | tcagcgtcag | 360  |
| gtgggtatga  | cgactctggc  | ggtgccaatc  | cacaatgcgg | aagaagcggtt | taaccgaaat | 420  |
| gcgggtgaaag | tgttctcga   | cgctgaaggg  | tatgcactgt | acttctctcg  | cgccaccatt | 480  |
| ccttgggatc  | gtgatcggtt  | tgcagaaggc  | cttgcaccgc | ttggcgataa  | cttcctgcgt | 540  |
| catcttggta  | tttatggcta  | ccgtgcaggc  | tttatccgtc | gttacgtcaa  | ctggcagcca | 600  |
| agtccgttag  | aacacatcg   | aatgttagag  | cagcttcgtg | ttctgtggta  | cggcggaaaa | 660  |
| atccatgtt   | ctgttgc     | ggaagttcct  | ggcacaggtg | tggatacccc  | tgaagatctc | 720  |
| gaccgcgtcg  | cgaaattctat | cggtgggtgac | atgaaagaca | tctggcgtaa  | cgaactgttc | 780  |
| aaatacaaag  | ttgttcgtgt  | taaaccgttc  | tctgttgc   | cgacccccc   | cgctcgtccg | 840  |
| gttatcggt   | ctggcaccc   | ccgtggaaaa  | cgtgctgtag | gtctgggtat  | gctgttctcg | 900  |
| ggcgttctgt  | ctgcagcagg  | ttccactatg  | ggtgctgcag | ctaccgcgtct | gaccgtacag | 960  |
| acccactctg  | ttatcaaagg  | tatcgatcg   | cagcaggaca | acctgctgcg  | tgcaatccag | 1020 |
| gcacagcagg  | aactgctgcg  | tctgtctgt   | tggggatacc | gtcagctgcg  | tgctcgtctg | 1080 |
| ctggcactgg  | aaaccctgt   | ccagaaccag  | cagctgcgt  | acctgtgggg  | ctgcaaaggt | 1140 |
| cgtctgatct  | gctacaccc   | cgtaaatgg   | aacgaaacct | ggcgttaacac | caccaacatc | 1200 |
| aaccagatct  | gggttaaccc  | gacctggcag  | aatgggacc  | agcagatcga  | caacgttct  | 1260 |
| tccaccatct  | acgaagaaa   | ccagaaaagct | caggttcagc | aggaacagaa  | cggaaaaaaa | 1320 |
| ctgctgaaac  | tggacgatg   | ggcttctctg  | tggactggc  | tggacatcac  | caaatggctg | 1380 |
| cgttaacatcc | gtcagggcta  | ccagccgctg  | tccctgcaga | tcccgaccgc  | tcagcagtct | 1440 |
| gaagctgaaa  | ctccgggtcg  | taccggtgaa  | ggtggcggtt | ctcgccctgct | ggctctggaa | 1500 |
| actctgattc  | agaaccagca  | actgcttaac  | ctgtgggtt  | gcaaggccg   | cctgatttgc | 1560 |

tacacttctg taaaatggta atag

1584

<210> 97  
 <211> 526  
 <212> PRT  
 <213> Human Immunodeficiency Virus  
  
 <220>  
 <223> Encodes recombinant protein pGO-15CKS  
  
 <400> 97  
 Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu  
 1 5 10 15  
 Pro Gly Lys Pro Leu Val Asp Ile Asn Gly Lys Pro Met Ile Val His  
 20 25 30  
 Val Leu Glu Arg Ala Arg Glu Ser Gly Ala Glu Arg Ile Ile Val Ala  
 35 40 45  
 Thr Asp His Glu Asp Val Ala Arg Ala Val Glu Ala Ala Gly Gly Glu  
 50 55 60  
 Val Cys Met Thr Arg Ala Asp His Gln Ser Gly Thr Glu Arg Leu Ala  
 65 70 75 80  
 Glu Val Val Glu Lys Cys Ala Phe Ser Asp Asp Thr Val Ile Val Asn  
 85 90 95  
 Val Gln Gly Asp Glu Pro Met Ile Pro Ala Thr Ile Ile Arg Gln Val  
 100 105 110  
 Ala Asp Asn Leu Ala Gln Arg Gln Val Gly Met Thr Thr Leu Ala Val  
 115 120 125  
 Pro Ile His Asn Ala Glu Glu Ala Phe Asn Pro Asn Ala Val Lys Val  
 130 135 140  
 Val Leu Asp Ala Glu Gly Tyr Ala Leu Tyr Phe Ser Arg Ala Thr Ile  
 145 150 155 160  
 Pro Trp Asp Arg Asp Arg Phe Ala Glu Gly Leu Glu Thr Val Gly Asp  
 165 170 175  
 Asn Phe Leu Arg His Leu Gly Ile Tyr Gly Tyr Arg Ala Gly Phe Ile  
 180 185 190  
 Arg Arg Tyr Val Asn Trp Gln Pro Ser Pro Leu Glu His Ile Glu Met  
 195 200 205  
 Leu Glu Gln Leu Arg Val Leu Trp Tyr Gly Glu Lys Ile His Val Ala  
 210 215 220  
 Val Ala Gln Glu Val Pro Gly Thr Gly Val Asp Thr Pro Glu Asp Leu  
 225 230 235 240  
 Asp Pro Ser Thr Asn Ser Ile Gly Gly Asp Met Lys Asp Ile Trp Arg  
 245 250 255  
 Asn Glu Leu Phe Lys Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val  
 260 265 270  
 Ala Pro Thr Pro Ile Ala Arg Pro Val Ile Gly Thr Gly Thr His Arg  
 275 280 285  
 Glu Lys Arg Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser  
 290 295 300  
 Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Ala Leu Thr Val Gln  
 305 310 315 320  
 Thr His Ser Val Ile Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu  
 325 330 335  
 Arg Ala Ile Gln Ala Gln Gln Glu Leu Leu Arg Leu Ser Val Trp Gly  
 340 345 350  
 Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu Thr Leu Ile Gln  
 355 360 365

Asn Gln Gln Leu Leu Asn Leu Trp Gly Cys Lys Gly Arg Leu Ile Cys  
 370 375 380  
 Tyr Thr Ser Val Lys Trp Asn Glu Thr Trp Arg Asn Thr Thr Asn Ile  
 385 390 395 400  
 Asn Gln Ile Trp Gly Asn Leu Thr Trp Gln Glu Trp Asp Gln Gln Ile  
 405 410 415  
 Asp Asn Val Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val  
 420 425 430  
 Gln Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala  
 435 440 445  
 Ser Leu Trp Asn Trp Leu Asp Ile Thr Lys Trp Leu Arg Asn Ile Arg  
 450 455 460  
 Gln Gly Tyr Gln Pro Leu Ser Leu Gln Ile Pro Thr Arg Gln Gln Ser  
 465 470 475 480  
 Glu Ala Glu Thr Pro Gly Arg Thr Gly Glu Gly Gly Ser Arg Leu  
 485 490 495  
 Leu Ala Leu Glu Thr Leu Ile Gln Asn Gln Gln Leu Leu Asn Leu Trp  
 500 505 510  
 Gly Cys Lys Gly Arg Leu Ile Cys Tyr Thr Ser Val Lys Trp  
 515 520 525

<210> 98  
 <211> 60  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Synthetic oligonucleotide (pTB319+A)

<400> 98  
 gaccgtccgg aaggtatcga agaagaaggc ggcgaaacgtg accgtgaccg ttccattcgt 60

<210> 99  
 <211> 53  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Synthetic oligonucleotide (pTB319+B)

<400> 99  
 atggaacggt cacggtcacg ttccggcct tcttcttcga tacttccgg acg 53

<210> 100  
 <211> 20  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Sequencing primer pTB-S4

<400> 100  
 atctctggaa cagatctgga 20

<210> 101  
 <211> 20  
 <212> DNA

|                                    |    |
|------------------------------------|----|
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing primer pTB-S7     |    |
| <400> 101                          |    |
| agtactgaag cagattccac              | 20 |
| <210> 102                          |    |
| <211> 19                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing primer pTB-S1     |    |
| <400> 102                          |    |
| ccgtcggtac gtcaactgg               | 19 |
| <210> 103                          |    |
| <211> 18                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing primer pTB-S2     |    |
| <400> 103                          |    |
| cggcggttgt atcgggtgc               | 18 |
| <210> 104                          |    |
| <211> 19                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing primer pTB-S3     |    |
| <400> 104                          |    |
| taccagacag aagctgacg               | 19 |
| <210> 105                          |    |
| <211> 20                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |
| <220>                              |    |
| <223> Sequencing primer pTB-S5     |    |
| <400> 105                          |    |
| cttcgatcag agagtggatc              | 20 |
| <210> 106                          |    |
| <211> 20                           |    |
| <212> DNA                          |    |
| <213> Human Immunodeficiency Virus |    |

<220>  
 <223> Sequencing primer pTB-S6

<400> 106  
 gacgatctgc gttctctgtg 20

<210> 107  
 <211> 1800  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGM-1CKS

<400> 107

|             |            |            |             |             |             |      |
|-------------|------------|------------|-------------|-------------|-------------|------|
| atgagtttg   | tggtcattat | tcccgccgc  | tacgcgtcga  | cgcgtctgcc  | cggtaaacca  | 60   |
| ttgggtgata  | ttaacggcaa | acccatgatt | gttcatgttc  | ttgaacgcgc  | gcgtgaatca  | 120  |
| ggtgcggcgc  | gcatcatcg  | ggcaaccgat | catgaggatg  | ttggccgcgc  | cgttgaagcc  | 180  |
| gctggccgtg  | aagtatgtat | gacgcgcgc  | gatcatcagt  | caggaacaga  | acgtctggcg  | 240  |
| gaagttgtcg  | aaaaatgcgc | attcagcgac | gacacggta   | tcgttaatgt  | gcagggtgat  | 300  |
| gaaccgatga  | tccctgcgac | aatcattcgt | caggttgcgt  | ataacctcgc  | tcagcgtcag  | 360  |
| gtgggtatgg  | cgactctggc | ggtgccaatc | cacaatgcgg  | aagaagcggt  | taacccgaat  | 420  |
| gcgggtgaaag | tgttctcg   | cgctgaaggg | tatgcactgt  | acttctctcg  | cgccaccatt  | 480  |
| ccttggatc   | gtgatcg    | tgcagaaggc | cttggaaaccg | ttggcgataa  | cttcctgcgt  | 540  |
| catcttggta  | tttatggcta | ccgtgcag   | tttatccgtc  | gttacgtcaa  | ctggcagcca  | 600  |
| agtccgttag  | aacacatcg  | aatgttagag | cagcttcgt   | ttctgtggta  | cggcgaaaaaa | 660  |
| atccatgtt   | ctgttgc    | ggaagttcct | ggcacagtg   | tggataccccc | tgaagatccg  | 720  |
| tcgacagccc  | ttatgaagat | ccccggcgc  | ccgggtgtg   | gtgacatgcg  | tgacaactgg  | 780  |
| cgttctgaac  | tgtacaaata | caaagtgtt  | aaaatcgaa   | cgctgggtgt  | tgctccgact  | 840  |
| aaagctaaac  | gtcgtgtt   | tcagcgtgaa | aaacgcgc    | ttgtatcgg   | tgcactgtt   | 900  |
| ctgggttcc   | tgggtgct   | tggttctacc | atgggtgt    | cttctatgac  | cctgactgtt  | 960  |
| caggccg     | agcttctgt  | tggatcg    | cagcagcaga  | acaatctgt   | gcgtgtatc   | 1020 |
| gaagctcag   | agcatctgt  | gcaactgacc | gttgggt     | tcaaacagct  | tcaggctcgt  | 1080 |
| atcctgct    | ttgaacgtt  | cctgaaagac | cagcagct    | tggtatct    | gggttgc     | 1140 |
| ggttaactga  | tctgca     | tgctgttcc  | tggacgtt    | cttggctaa   | caaatctcg   | 1200 |
| gaacagatct  | ggaacaacat | gacttggat  | aatgggacc   | gtgaaatcaa  | caactacaca  | 1260 |
| agcttgc     | actctctgt  | cgaagaaagc | cagaaccagc  | agggaaaaaa  | cgaacaggaa  | 1320 |
| cttctagaac  | tggacaat   | ggttaaccgt | gttcgtcagg  | ttactctcc   | gtgtctt     | 1380 |
| cagaccatc   | tgccc      | gcgtggcc   | gaccgtc     | aagtatcga   | agaagaaaggc | 1440 |
| ggcgaacgt   | accgtgacc  | ttccattcg  | ctggtaa     | ttctctggc   | tctgatctgg  | 1500 |
| gacgatct    | gttctctgt  | cctgttct   | taccaccgt   | tgcgtatct   | gtgtgtatc   | 1560 |
| gtgactcg    | tcgttga    | actgtccgt  | cgtgg       | aagtctgaa   | atactgg     | 1620 |
| aatctgc     | actactgg   | ccaggaact  | aaaaactct   | ctgttct     | gctgaacgct  | 1680 |
| actgctatc   | ctgttgc    | aggcaccg   | cgtgttatc   | aagtagttc   | gggtgcttac  | 1740 |
| cgtctatc    | gtcacatcc  | gcgtcgtatc | cgtcagg     | tgaaacgtat  | cctgctgtaa  | 1800 |

<210> 108  
 <211> 599  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Encodes recombinant protein pGM-1CKS

<400> 108  
 Met Ser Phe Val Val Ile Ile Pro Ala Arg Tyr Ala Ser Thr Arg Leu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 5   | 10  | 15  |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Gly | Lys | Pro | Leu | Val | Asp | Ile | Asn | Gly | Lys | Pro | Met | Ile | Val | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Val | Leu | Glu | Arg | Ala | Arg | Glu | Ser | Gly | Ala | Glu | Arg | Ile | Ile | Val | Ala |
|     |     |     | 35  |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Thr | Asp | His | Glu | Asp | Val | Ala | Arg | Ala | Val | Glu | Ala | Ala | Gly | Gly | Glu |
|     |     |     | 50  |     |     |     | 55  |     |     | 60  |     |     |     |     |     |
| Val | Cys | Met | Thr | Arg | Ala | Asp | His | Gln | Ser | Gly | Thr | Glu | Arg | Leu | Ala |
|     |     |     | 65  |     |     |     | 70  |     |     | 75  |     |     | 80  |     |     |
| Glu | Val | Val | Glu | Lys | Cys | Ala | Phe | Ser | Asp | Asp | Thr | Val | Ile | Val | Asn |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     | 95  |     |     |     |
| Val | Gln | Gly | Asp | Glu | Pro | Met | Ile | Pro | Ala | Thr | Ile | Arg | Gln | Val |     |
|     |     |     | 100 |     |     |     | 105 |     |     |     | 110 |     |     |     |     |
| Ala | Asp | Asn | Leu | Ala | Gln | Arg | Gln | Val | Gly | Met | Ala | Thr | Leu | Ala | Val |
|     |     |     | 115 |     |     |     | 120 |     |     |     | 125 |     |     |     |     |
| Pro | Ile | His | Asn | Ala | Glu | Glu | Ala | Phe | Asn | Pro | Asn | Ala | Val | Lys | Val |
|     |     |     | 130 |     |     |     | 135 |     |     | 140 |     |     |     |     |     |
| Val | Leu | Asp | Ala | Glu | Gly | Tyr | Ala | Leu | Tyr | Phe | Ser | Arg | Ala | Thr | Ile |
|     |     |     | 145 |     |     |     | 150 |     |     | 155 |     |     | 160 |     |     |
| Pro | Trp | Asp | Arg | Asp | Arg | Phe | Ala | Glu | Gly | Leu | Glu | Thr | Val | Gly | Asp |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     | 175 |     |     |     |
| Asn | Phe | Leu | Arg | His | Leu | Gly | Ile | Tyr | Gly | Tyr | Arg | Ala | Gly | Phe | Ile |
|     |     |     | 180 |     |     |     | 185 |     |     |     | 190 |     |     |     |     |
| Arg | Arg | Tyr | Val | Asn | Trp | Gln | Pro | Ser | Pro | Leu | Glu | His | Ile | Glu | Met |
|     |     |     | 195 |     |     |     | 200 |     |     |     | 205 |     |     |     |     |
| Leu | Glu | Gln | Leu | Arg | Val | Leu | Trp | Tyr | Gly | Glu | Lys | Ile | His | Val | Ala |
|     |     |     | 210 |     |     |     | 215 |     |     |     | 220 |     |     |     |     |
| Val | Ala | Gln | Glu | Val | Pro | Gly | Thr | Gly | Val | Asp | Thr | Pro | Glu | Asp | Pro |
|     |     |     | 225 |     |     |     | 230 |     |     | 235 |     |     | 240 |     |     |
| Ser | Thr | Ala | Leu | Met | Lys | Ile | Pro | Gly | Asp | Pro | Gly | Gly | Asp | Met |     |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     | 255 |     |     |     |
| Arg | Asp | Asn | Trp | Arg | Ser | Glu | Leu | Tyr | Lys | Tyr | Lys | Val | Val | Lys | Ile |
|     |     |     | 260 |     |     |     | 265 |     |     |     | 270 |     |     |     |     |
| Glu | Pro | Leu | Gly | Val | Ala | Pro | Thr | Lys | Ala | Lys | Arg | Arg | Val | Val | Gln |
|     |     |     | 275 |     |     |     | 280 |     |     |     | 285 |     |     |     |     |
| Arg | Glu | Lys | Arg | Ala | Val | Gly | Ile | Gly | Ala | Leu | Phe | Leu | Gly | Phe | Leu |
|     |     |     | 290 |     |     |     | 295 |     |     |     | 300 |     |     |     |     |
| Gly | Ala | Ala | Gly | Ser | Thr | Met | Gly | Ala | Ala | Ser | Met | Thr | Leu | Thr | Val |
|     |     |     | 305 |     |     |     | 310 |     |     | 315 |     |     | 320 |     |     |
| Gln | Ala | Arg | Gln | Leu | Leu | Ser | Gly | Ile | Val | Gln | Gln | Gln | Asn | Asn | Leu |
|     |     |     |     | 325 |     |     |     | 330 |     |     |     | 335 |     |     |     |
| Leu | Arg | Ala | Ile | Glu | Ala | Gln | His | Leu | Leu | Gln | Leu | Thr | Val | Trp |     |
|     |     |     | 340 |     |     |     | 345 |     |     |     | 350 |     |     |     |     |
| Gly | Ile | Lys | Gln | Leu | Gln | Ala | Arg | Ile | Leu | Ala | Val | Glu | Arg | Tyr | Leu |
|     |     |     | 355 |     |     |     | 360 |     |     |     | 365 |     |     |     |     |
| Lys | Asp | Gln | Gln | Leu | Leu | Gly | Ile | Trp | Gly | Cys | Ser | Gly | Lys | Leu | Ile |
|     |     |     | 370 |     |     |     | 375 |     |     | 380 |     |     |     |     |     |
| Cys | Thr | Thr | Ala | Val | Pro | Trp | Asn | Ala | Ser | Trp | Ser | Asn | Lys | Ser | Leu |
|     |     |     | 385 |     |     |     | 390 |     |     | 395 |     |     | 400 |     |     |
| Glu | Gln | Ile | Trp | Asn | Asn | Met | Thr | Trp | Met | Glu | Trp | Asp | Arg | Glu | Ile |
|     |     |     |     | 405 |     |     |     | 410 |     |     |     | 415 |     |     |     |
| Asn | Asn | Tyr | Thr | Ser | Leu | Ile | His | Ser | Leu | Ile | Glu | Glu | Ser | Gln | Asn |
|     |     |     | 420 |     |     |     | 425 |     |     |     | 430 |     |     |     |     |
| Gln | Gln | Glu | Lys | Asn | Glu | Gln | Glu | Leu | Leu | Glu | Leu | Asp | Lys | Trp | Val |
|     |     |     | 435 |     |     |     | 440 |     |     |     | 445 |     |     |     |     |
| Asn | Arg | Val | Arg | Gln | Gly | Tyr | Ser | Pro | Leu | Ser | Phe | Gln | Thr | His | Leu |
|     |     |     | 450 |     |     |     | 455 |     |     |     | 460 |     |     |     |     |

Pro Ile Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly  
 465 470 475 480  
 Gly Glu Arg Asp Arg Asp Arg Ser Ile Arg Leu Val Asn Gly Ser Leu  
 485 490 495  
 Ala Leu Ile Trp Asp Asp Leu Arg Ser Leu Cys Leu Phe Ser Tyr His  
 500 505 510  
 Arg Leu Arg Asp Leu Leu Ile Val Thr Arg Ile Val Glu Leu Leu  
 515 520 525  
 Gly Arg Arg Gly Trp Glu Ala Leu Lys Tyr Trp Trp Asn Leu Leu Gln  
 530 535 540  
 Tyr Trp Ser Gln Glu Leu Lys Asn Ser Ala Val Ser Leu Leu Asn Ala  
 545 550 555 560  
 Thr Ala Ile Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val Val  
 565 570 575  
 Gln Gly Ala Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile Arg Gln  
 580 585 590  
 Gly Leu Glu Arg Ile Leu Leu  
 595

<210> 109  
 <211> 47  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> PCR primer pTB/0-5'

<400> 109  
 gactacttgt agccattcgt ctggtaatcg gtggtgacat gaaagac

47

<210> 110  
 <211> 33  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Sequencing primer pGO-9/Kpn

<400> 110  
 acaatgatgg tacctattat tcaccggtag gac

33

<210> 111  
 <211> 18  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Sequencing primer 3962

<400> 111  
 attgggttgat attaacgg

18

<210> 112  
 <211> 20  
 <212> DNA  
 <213> Human Immunodeficiency Virus

|  |    |  |
|--|----|--|
| <220>  |    |  |
| <223> Sequencing primer Sy120-S1                 |    |  |
| <400> 112  |    |  |
| tcgggtggta catgaaagac                            | 20 |  |
| <210> 113  |    |  |
| <211> 20   |    |  |
| <212> DNA  |    |  |
| <213> Human Immunodeficiency Virus               |    |  |
| <220>  |    |  |
| <223> Sequencing primer 3965                     |    |  |
| <400> 113  |    |  |
| aaaataggcg tattcacgagg                           | 20 |  |
| <210> 114  |    |  |
| <211> 40   |    |  |
| <212> DNA  |    |  |
| <213> Human Immunodeficiency Virus               |    |  |
| <220>  |    |  |
| <223> PCR primer pGO-8/Kpn                       |    |  |
| <400> 114  |    |  |
| acaatgatgg tacctattac agccatttgg tgatgtccag      | 40 |  |
| <210> 115  |    |  |
| <211> 46   |    |  |
| <212> DNA  |    |  |
| <213> Human Immunodeficiency Virus               |    |  |
| <220>  |    |  |
| <223> PCR primer pTB/Age5'                       |    |  |
| <400> 115  |    |  |
| taacgatcg ctaccggta aggtccgggt ggtggtgaca tgcgtg | 46 |  |
| <210> 116  |    |  |
| <211> 38   |    |  |
| <212> DNA  |    |  |
| <213> Human Immunodeficiency Virus               |    |  |
| <220>  |    |  |
| <223> PCR primer pGO/B-3'                        |    |  |
| <400> 116  |    |  |
| caagatggat ctttattatac cagacgaatg gaacggtc       | 38 |  |
| <210> 117  |    |  |
| <211> 122  |    |  |
| <212> DNA  |    |  |
| <213> Human Immunodeficiency Virus               |    |  |
| <220>  |    |  |
| <223> Synthetic oligonucleotide (synIDR#2-A)     |    |  |

<400> 117  
 ccggtaagg tggcggttct cgcctgctgg ctctggaaac tctgattcag aaccagcaac 60  
 tgcttaacct gtggggttgc aaggccgca tgatttgcata cacttctgtaaatggtaat 120  
 ag 122

<210> 118  
 <211> 122  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Synthetic oligonucleotide (synIDR#2-B)

<400> 118  
 gatcctatta ccattttaca gaagtgttagc aaatcaggcg gcccttgcaa ccccacaggt 60  
 taaggcgttg ctggttctga atcagagttt ccagagccag caggcgagaa cggccacatt 120  
 ca 122

<210> 119  
 <211> 849  
 <212> DNA  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Nucleotide sequence of the coding region of  
 pGO-15PL

<400> 119  
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 cgtgttaaac cggtctctgt tgctccgacc ccgatcgctc gtccggatcggtat cggtactggc 120  
 accccaccgtg aaaaacgtgc tggtaggtctg ggtatgctgt tcctggcggt tctgtctgca 180  
 gcaggttcca ctatgggtgc tgcagctacc gctctgaccg tacagaccca ctctgttatac 240  
 aaaggatatcg tacagcagca ggacaacctg ctgcgtgcaaa tccaggcaca gcaggaactg 300  
 ctgcgtctgt ctgtatgggg tatccgtcag ctgcgtgctc gtctgctggc actggaaacc 360  
 ctgatccaga accagcagct gctgaacctg tggggctgca aaggtcgctct gatctgttac 420  
 acctccgtta aatggAACGA aacctggcggt aacaccacca acatcaacca gatctggggt 480  
 aacctgaccc ggcaggaaatg ggaccagcag atcgacaacg ttcttccac catctacgaa 540  
 gaaatccaga aagctcaggt tcagcaggaa cagaacgaaa aaaaactgct ggaactggac 600  
 gaatgggctt ctctgtggaa ctggctggac atcaccaat ggctgcgtaa catccgtcag 660  
 ggctaccagc cgctgtccct gcagatccc acccggtcagc agtctgaagc tgaaactccg 720  
 ggctcgtaaccg gtgaaagggtgg cggttctcgc ctgcgtggctc tggaaactct gattcagaac 780  
 cagcaactgc ttaacctgtg gggttgcaag ggccgcctga tttgctacac ttctgtaaaa 840  
 tggttaatag 849

<210> 120  
 <211> 281  
 <212> PRT  
 <213> Human Immunodeficiency Virus

<220>  
 <223> Encodes recombinant protein pGO-15PL

<400> 120  
 Met Ile Gly Gly Asp Met Lys Asp Ile Trp Arg Asn Glu Leu Phe Lys  
 1 5 10 15  
 Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val Ala Pro Thr Pro Ile

|   |                                 |         |     |
|---|---------------------------------|---------|-----|
| 20                                      | 25                              | 30      |     |
| Ala Arg Pro Val Ile Gly Thr Gly         | Thr His Arg Glu Lys Arg         | Ala Val |     |
| 35                                      | 40                              | 45      |     |
| Gly Leu Gly Met Leu Phe Leu Gly Val     | Leu Ser Ala Ala Gly Ser Thr     |         |     |
| 50                                      | 55                              | 60      |     |
| Met Gly Ala Ala Ala Thr Ala Leu Thr Val | Gln Thr His Ser Val Ile         |         |     |
| 65                                      | 70                              | 75      | 80  |
| Lys Gly Ile Val Gln Gln Asp Asn         | Leu Arg Ala Ile Gln Ala         |         |     |
| 85                                      | 90                              | 95      |     |
| Gln Gln Glu Leu Leu Arg Leu Ser Val     | Trp Gly Ile Arg Gln Leu Arg     |         |     |
| 100                                     | 105                             | 110     |     |
| Ala Arg Leu Leu Ala Leu Glu Thr         | Leu Ile Gln Asn Gln Gln Leu Leu |         |     |
| 115                                     | 120                             | 125     |     |
| Asn Leu Trp Gly Cys Lys Gly Arg         | Leu Ile Cys Tyr Thr Ser Val Lys |         |     |
| 130                                     | 135                             | 140     |     |
| Trp Asn Glu Thr Trp Arg Asn Thr         | Asn Ile Asn Gln Ile Trp Gly     |         |     |
| 145                                     | 150                             | 155     | 160 |
| Asn Leu Thr Trp Gln Glu Trp Asp         | Gln Ile Asp Asn Val Ser Ser     |         |     |
| 165                                     | 170                             | 175     |     |
| Thr Ile Tyr Glu Glu Ile Gln Lys         | Ala Gln Val Gln Gln Glu Gln Asn |         |     |
| 180                                     | 185                             | 190     |     |
| Glu Lys Lys Leu Leu Glu Leu Asp         | Glu Trp Ala Ser Leu Trp Asn Trp |         |     |
| 195                                     | 200                             | 205     |     |
| Leu Asp Ile Thr Lys Trp Leu Arg Asn     | Ile Arg Gln Gly Tyr Gln Pro     |         |     |
| 210                                     | 215                             | 220     |     |
| Leu Ser Leu Gln Ile Pro Thr Arg         | Gln Gln Ser Glu Ala Glu Thr Pro |         |     |
| 225                                     | 230                             | 235     | 240 |
| Gly Arg Thr Gly Glu Gly Gly Ser         | Arg Leu Leu Ala Leu Glu Thr     |         |     |
| 245                                     | 250                             | 255     |     |
| Leu Ile Gln Asn Gln Gln Leu Leu Asn     | Leu Trp Gly Cys Lys Gly Arg     |         |     |
| 260                                     | 265                             | 270     |     |
| Leu Ile Cys Tyr Thr Ser Val Lys         | Trp                             |         |     |
| 275                                     | 280                             |         |     |

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&lt;210&gt; 121

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Human Immunodeficiency Virus

&lt;220&gt;

&lt;223&gt; PCR Primer 63168

&lt;400&gt; 121

acgttcgccg ccttcttctt cg